THE OLD TIMER'S BULLETIN

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Published for the Old Time Wireless Operator, Historian and Collector

VOL. 28 AUGUST 1987 NO. 2

1928 Radio Movies

(See page 8)

Devoted to research and documentation of the history of wireless communications.

Member:
American Association of Museums
Regional Conference of Historical Agencies

ANTIQUE WIRELESS ASSOCIATION, INC.
HOLCOMB, NEW YORK 14469

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A.W.A. JOURNAL
"The Old Timers Bulletin"

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Managing Editor:
BRUCE KELLEY, W2ICE
Printer: Don Ray, WA2PKS
Photographer: Dick Ransley, WA2TLR

Contributing Editors:
Broadcast Receivers: Bob Allen
Association News: Cicely Blossom Smith
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Don deNeuf, WA1SPM
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Old Timers Bulletin material, Museum artifacts.

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A.W.A. HISTORICAL MUSEUM

East Bloomfield, N. Y.
Free Admission

Museum Hours:

May 1st through October 31st
SUNDAY 2 TO 5 PM

June 1st through August 31st
SATURDAY 2 TO 4 PM
WEDNESDAY 7 TO 9 PM

Open to groups by appointment
Tele. (716) 657-7489

Museum Tele. (716) 657-6260

COMING EVENTS
ANTIQUE WIRELESS ASSOCIATION

JULY 23	AWA New England Meet East Greenwich, R.I.
AUG. 14-15	ARCI- AWA Meet Chicago, Illinois
AUG. 22	N.F.W.A. - AWA Meet Elma, N.Y.
SEPT.12 (?)	Annual Hamfest Gaithersburg, Md.
SEPT. 23-27	National Conference
OCT.16-18	V.R.P.S. - AWA Meet Dallas, Texas
OCT. 14-15	1929 QSO Party
OCT. 25	AWA Museum closes
NOV. 1	Annual Business Meeting 2 PM, Sheraton Inn Canandaigua, N.Y.
NOV. 29	Workers Christmas Party

IMPORTANT NOTICE !

Effective immediately all

DUES and ADDRESS CHANGES

must be sent to the following address:

ANTIQUE WIRELESS ASSN.
BOX "E"

BREESPORT, NY 14816

(Do NOT use the former Penn Yan address.)

NEW EQUIPMENT
in A.W.A. Museum
(sets, parts, magazines, books, etc.)

W2DYR, KD2OM, K2KLP, K2WW, W2DG, W3HVE, W4ACY, W6SAI, W9YZE, Wilbert Snyder, Mani Pires, Ron Lawrence, Timothy Howard, Angus Westkirk,

LATE NEWS RELEASE:

JAMES MILLEN (W1HRX) 82 yrs.
North Reading, Massachusetts

Founder-president of the James Millen Company and former chief engineer and general manager of the National Company, Jim was best known for his design of a long series of high grade amateur and commercial receivers. He was a member and strong supporter of AWA. See "*AWA REVIEW*" for the history of the National Company.

ASSOCIATION NEWS

Report by Cicely Blossom-Smith

NORTHERN NEW JERSEY MEET

Members, as well as the organizer John "Hammy" Richardt, were pleasantly surprised at the large turnout for the club's first New Jersey Meet...in fact, dinner reservations almost taxed the restaurant's capacity. The BULK Appraisal Contest drew much attention with Linda, K2YL, taking first prize by being closest to the total average of $402. How did you do this Linda? -- you're not a collector!

A highlight was the presentation of Bob Gunderson's,W2JIO, homemade transmitter to the Association's Museum. Bob (now a Silent Key) was well known for his outstanding work in radio with a serious handicap. Bob was totally blind. Collectors had a great time at the outdoor flea market and all agreed a similar event in 1988 is a "must"...Thanks "Hammy".....

INDIANA

Somehow I misplaced the report on the IHRS-AWA Meet held at Auburn,Indiana. Ross Smith wrote and told about a large turnout with nearly 200 attending. This is a popular event in the Indiana- Ohio- Illinious- and Michigan areas. Sorry I don't have details.

Southern AWA Meet Is Successful

Larry Flegle sent a detailed report on the AWA Georgia Meet. A highlight was the excellent response to the Equipment Contest. Several categories brought out some fine receivers. To avoid future conflict in "Meets", Larry would like better coordination with other clubs-groups in setting meeting dates.Let's work on this for next year.

This same group also sponsored an excellent historical exhibit at the ARRL National Convention in Atlanta in July. More later....

ALEXANDERSON ALTERNATOR TRANSMISSION FROM SAQ

A tape cassette of the SAQ transmissions was recently given to AWA by Eric Cruser, W2DYR. He was one of the very few in the United States who received the Alexanderson alternator transmissions last September. Reception was quite noisy but one could copy the code message.

Eric used a Drake 2B receiver tuned to the 40 meter band with the selectivity switch in the 0.5 kHz position. The low frequency converter consisted of a mixer and a 7 mHz crystal oscillator, The input of the mixer was tuned. The antenna was the "T" type with 136 ft. horizontal at 65 ft. with 55 ft. vertical working against a counterpoise. This OT knows his business...congrats Eric!

1929 QSO PARTY

1929 Vintage Equipment

Wednesday & Thursday, October 14 & 15

7 PM EDST until midnite

Operation approx 3590 kc.

Send "CQ AWA". Make as many contacts as possible with other members using vintage equipment. Exchange RST, power input and year xmtr.

The Old Time Transmitter QSO party is open to members using transmitters of 1929 vintage (or earlier) of the self-excited type such as Hartley, Tnt, etc. The power input must be LESS than 10 watts.

Participants are encouraged to use vintage equipment such as a regenerative receiver if available (but not necessary) and a straight hand key.

Try to keep your power below the 10 watt level. Bring your OT gear to the AWA Conference Amateur "meet" Friday morning.

Send copy of log with equipment used to:

Bud Hall, K2LP, Box 974

Eastham, Massachusetts 02642

HAVE YOU RESTORED a broadcast receiver lately? Write and tell us about it. If possible, include a picture. Editor, Antique Wireless Association, Main Street, Holcomb, New York 14469.

ASSOCIATION NEWS

AWA SOUTHEAST CONFERENCE IN NORTH CAROLINA

A report from Ron Lawrence and Bob Lozier tells of another successful meet in Charlotte. Although attendance is usually not great at regional gatherings, they do provide an opportunity for members to get together, exchange equipment, have a contest and see what the other fellow is collecting – and of course, friendly conversation over the dinner table – in this case also a buffet breakfast.

"*Best of the Show*" award went to Larry Boyer for his fine collection of crystal sets. Thanks Ron – and to Bob for inviting the gang to his home Friday PM.

Again available:

SAGA OF THE VACUUM TUBE

The classic authority on the history of tubes "*SAGA OF THE VACUUM TUBE*" by Gerald F. J. Tyne.

Antique Electronic Supply has contracted with Howard W. Sams & Co., Inc. for a new printing of this book. Available now in soft cover, the price is $15.95. The "*Saga*" contains 494 pages with hundreds of illustrations showing virtually all of the collectable vacuum tubes in this country. Gerry Tyne graduated from Rensselaer Polytechnic Institute and joined the technical staff of Bell Telephone Laboratories. He also became a research associate of the Smithsonian Institution. Bell Labs News of March 1974 said "*Tyne probably knows more about the history of tubes than anyone else in the world*". The "*Saga*" documents and preserves this history and continues to be the primary reference for tube collecting.

For further information call George Fathauer 602-894-9503. Available from:

Antique Electronic Supply
688 W. First Street
Tempe, AZ 85281

OT CONTEST

The large montage of OT stations made by Bill Hurni, W3HWT, of participants in the recent OT contest is "on hold". The printer feels he may have a problem in reproducing the prints. It is an excellent assortment of pictures and Bill deserves much credit for the layout.

LOCAL MEET A SELL-OUT!

Sorry – members who waited until the last day to make dinner reservations at the Local AWA Spring Meet found it difficult to find seating ... it was a sell-out!

The American Legion Women's Auxiliary served over 100 dinners with nearly 200 in over-all attendance. Two popular auctions of miscellaneous gear given to AWA for sale (with proceeds to the Museum Fund) were the major attractions. The BULK Appraisal Contest created greater interest than anticipated. Three early receivers and a horn speaker found three members setting a figure of $210 – and the winner hit the total value right on the head at $211!! – there were some pretty sharp operators in the crowd....

BACK ISSUES

The following OLD TIMERS BULLETINS remain in stock. Make check out to A. W. A. and mail to:

Dexter Deeley
8 Briar Circle
Rochester, N. Y. 14618

Vol. #	Vol. #	Vol. #	Vol. #
18-3	22-1	23-4	25-1
~~18-4~~	22-2	24-1	25-3
21-2	23-1	~~24-2~~	25-4
~~21-3~~	23-2	24-3	26-1
~~21-4~~	23-3	24-4	26-2

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~~15-2~~	~~17-2~~	21-1	27-1
~~15-4~~	~~19-2~~	22-3	27-2
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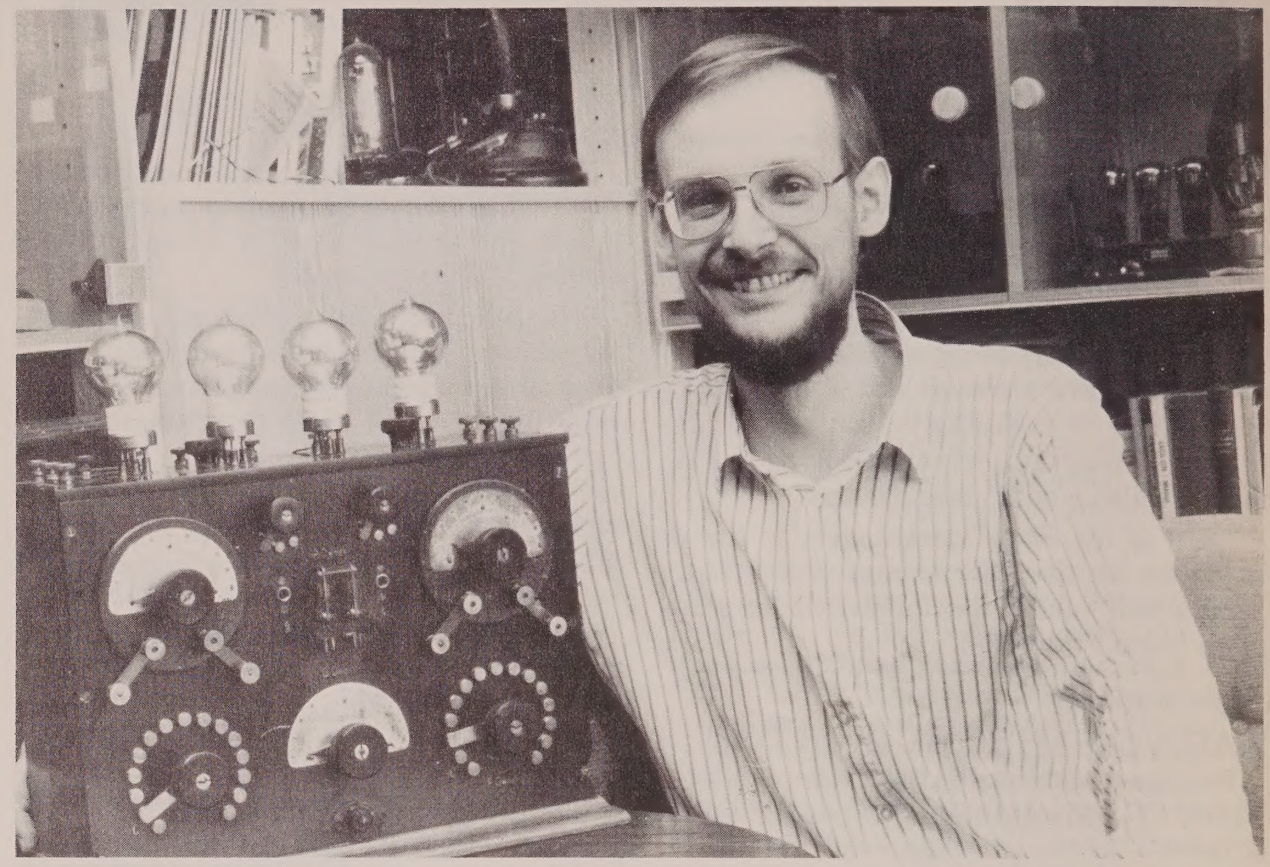
Issues with Monograph
$3.00 each ppd. (1st class mail)

17-4 (Index) 18-1
$4.00 each ppd. (1st class mail)

Vol. 1 #2 and #3 (reprints for reference.) 50¢ each ppd.



DR. RUDIGER WALZ of KELKHEIM, GERMANY

Our guest of honor at the 1987 Conference is well known in European radio circles. He has given numerous lectures on German tube development and is editor of the German club's paper *Fundgeschichte*. Many American AWA members had an opportunity to meet him at the British-AWA London meeting. Rudy will tell about his radio workshop where he makes early tubes as a hobby. In addition, he will give an illustrated talk on the unique German Loewe valve. Pictured is a 1922 French "*Mondial*" receiver using Rudy's homemade Type "R" valves.

TELECOMMUNICATION

Editor: Don de Neuf, WA1SPM

OLD TELEGRAPH STAMPS WORTH $9000

Early in 1873 the *Colusa, Lake, and Mendocino Telegraph Company* was organized in northern California, and was first known as the *Princeton, Colusa, and Grand Island Telegraph Company*. It completed a telegraph line from Princeton through Colusa at which point it connected with the Western Union office to Grand Island. Its lines eventually extended through the counties of Colusa, Lake Mendocino and Napa and reached a length of some 260 miles. It went out of business in 1892. Why, seems to be lost in history. In 1876 the company issued stamps in booklet form for the prepayment of messages. Such stamps were affixed to the telegram.

These telegraph stamps today are scarce and enjoy a relatively high philatelic value. Scott's Catalogue – the "*bible*" of the stamp hobby – lists a single CL&M 5¢ black stamp as worth $150. And the very rare 10¢ black and the 25¢ red are listed as $9,000 each. (A facsimile of the 5¢ stamp is shown.)

We suggest that old timers might want to check on the paper in their attic to see if there are any old telegrams which have such stamps affixed to them. Good luck!

COMING EVENTS

NEW YORK

Announcing:

SUMMER MEET

A.W.A. - N.F.W.A.

SATURDAY, AUGUST 22ND

ELMA CONSERVATION CLUB

Again AWA joins NFWA for a summer "meet"...here's the schedule....let's have a good turnout:

10:00 AM Flea market

12:30 PM Dinner

1:00 PM Program on collecting

2:00 PM Announcement of contest winners.

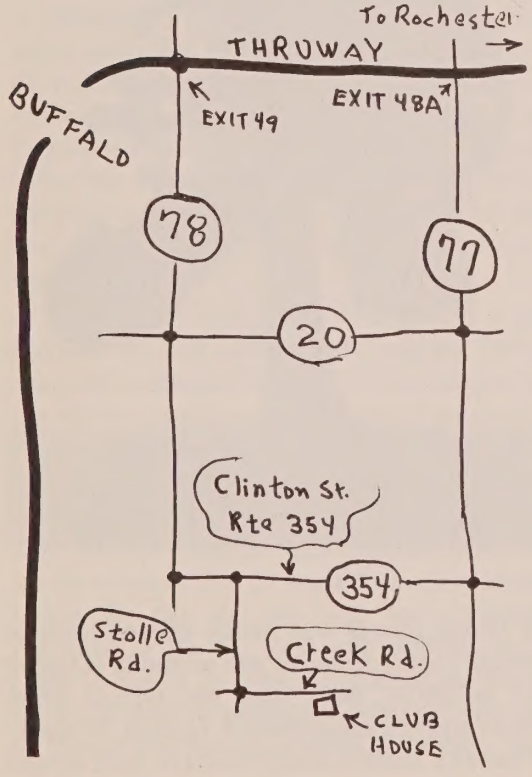
Equipment Contest

Entries accepted between 10 AM and noon. Categories:

1. Homemade crystal sets used for broadcast reception.
2. Homemade 1,2 or 3 tube re-receivers used for broadcast reception.

Dinner reservations absolutely necessary. Please telephone or write BEFORE Aug. 18

James Kreuzer (716) 681-3186
6270 Clinton St.,Elma,NY 14059



VRPS TEXAS

Vintage Radio & Phonograph Society
and AWA 1987 Annual Convention

Friday thru Sunday, Oct. 16 - 18

HOLIDAY INN DALLAS-SOUTHWEST
Dallas, Texas

Features:

--large old equipment contest with 18 categories (trophies & ribbons).

--large auction with over 300 lots!

--swapfest Sunday morning

--technical sessions Saturday

--cocktail party and banquet with awards Saturday evening. Chance for prizes for early registrants.

Registration, map, program, etc...
Write: VRPS/AWA Convention Manager
Mike Sherman, Box 165345,
Irving, Texas 75016

(Free toll call outside of Texas:
1-800-527-9250)

The Antique Radio Club of Illinois and The Antique Wireless Association

RADIOFEST '87

August 14th and 15th

The Holiday Inn Holidome
and Convention Center
345 River Road • Elgin, Illinois 60120

Program highlights:

--talk on "The Life and Times of Heinrich Hertz"

--the story of "Hallicrafter in the War Years".

--special display of German receivers

--tour of Ralph Muchow's Museum.

--flea market, dinner and a great time!

For more information and registration, write: JOE WILLIS P.O. Box 14732
Chicago, Ill. 60614

The TELEVISION RECEIVER

Editor: Jack Davis
63 Midchester Ave., White Plains, NY 10606
All correspondence requires SASE for reply

RADIOMOVIES

1928 TELEVISON MOVIES IN 1987

by Peter Yanczer, 835 Bricken Place, St. Louis, MO 63122

1987 marks the 62nd year since televison began amidst an array of whirling scanning disks and flickering neon lamps. In 1925, C. Francis Jenkins successfully transmitted and received a silhouette of a rotating toy windmill between his laboratory in Anacostia, Maryland, and the Navy laboratories at station NOF in Washington, DC. Later that year Jenkins gave a public demonstration of the radio transmission of live images (Radiovision) and motion picture films (Radiomovies).

"*Radiomovies*" were first broadcast on a regular schedule, beginning July 2, 1928. At first and for a long time, only silhouettes were broadcast. Jenkins set up his own movie studio to produce these special films. The "*stars*" were recruited from his laboratory staff, except those parts taken by children. One little girl, Jane Marie, became known all over the continent as "*The Little Girl Bouncing the Ball*".

Some of the other silhouettes were "*The Washington Woman*", "*The Crook*", a little girl skipping rope, the putting it away and turning somersaults, another little girl who washed her doll's clothes and hung them up to dry "*in a drying breeze*".

All of these transmissions were sent on a wavelength of 46 meters. The transmissions were limited to silhouettes so that the frequency band could be kept within the legal limit of 10 khz. Later a band of 100 khz was authorized and Jenkins began transmitting half-tone movies. Based on letters received by the station, the movies were very popular, and Jenkins estimated his audience for the movies to be between 18,000 and 20,000. During this period, other stations installed their own "*Radiomovies*" equipment, built by companies such as Westinghouse.

The basic principles developed by Jenkins for projecting movies on television are still used in modern station equipment.

Based on the universal appeal of movies on television, I decided to build a representative unit, using the principles developed by Jenkins.

It was desirable to keep its physical dimensions to a minimum and the weight down so it could be easily moved from one place to another. It would be used in a "*closed circuit*" configuration and its output signal had to be compatible with two existing standard 48 line receivers. It goes without saying that the machine had to perform well, be reliable and "*come in*" at a reasonable cost.

35mm, 16mm and the two 8mm film formats were considered. The 35mm format was rejected because of film costs and the size of the projection equipment. It was very difficult to decide between the 16mm and 8mm formats because in both cases, good used projectors are obtainable at very reasonable cost, a wide variety of film exists in both formats, again at reasonable cost, and the superior resolution and brightness of 16mm film is of no special benefit in a television system operating with 48 lines. Furthermore, the projectors are approximately the same size and weight.

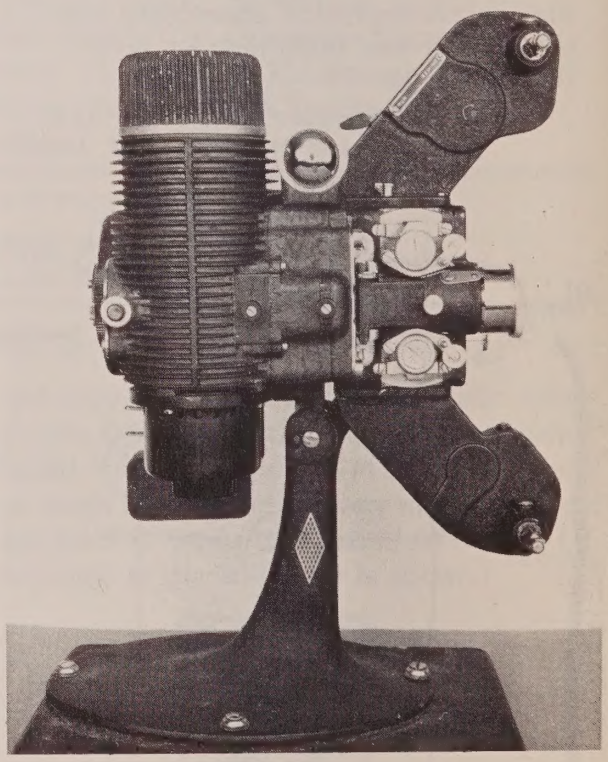


Fig. 1

The 16mm format was finally chosen because the average 16mm projector was probably of higher quality or better built than the typical 8mm machines, and two similar Bell & Howell, Model U (see Figure 1), 16mm silent projectors, built around

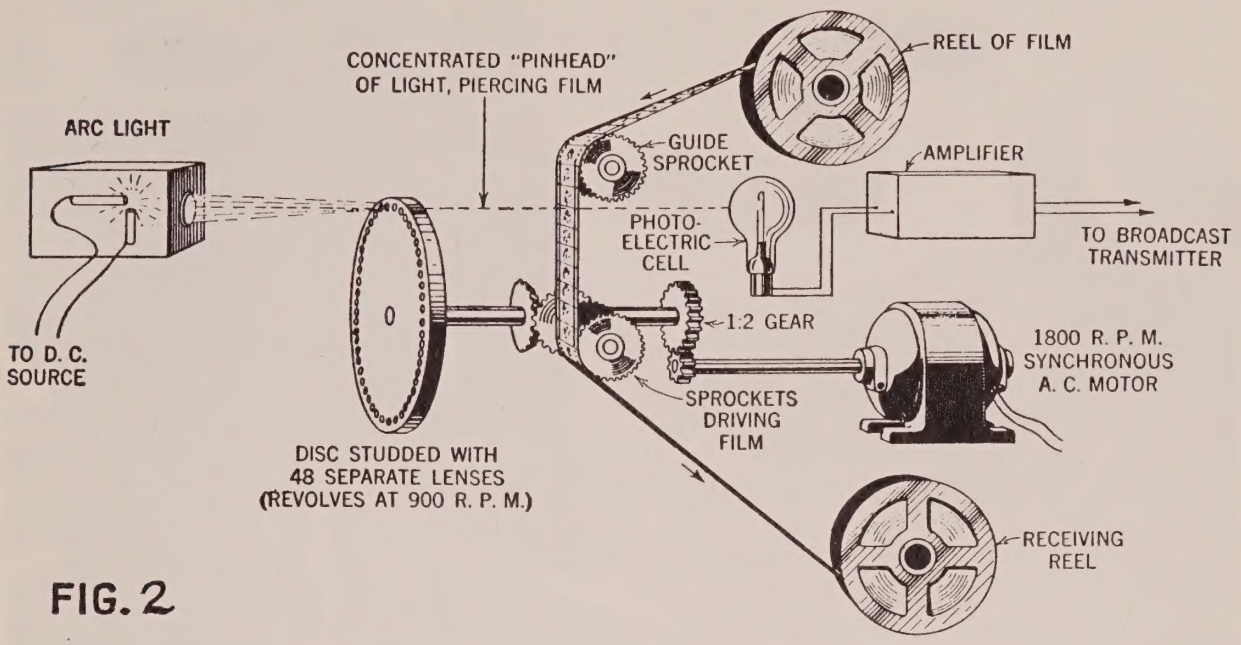


FIG. 2

1935, were available. One of them could be used for spare parts if necessary.

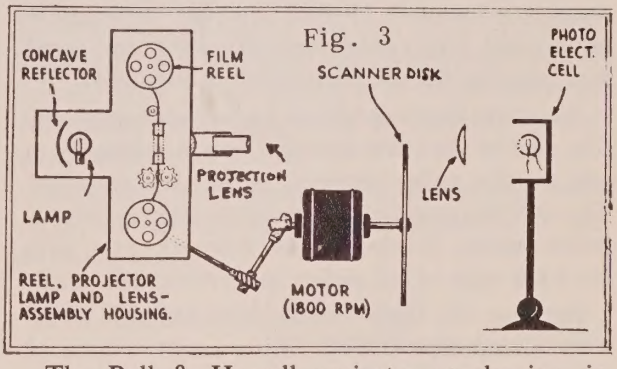
To be used for television and in keeping with Jenkins' principles, the projector had to be modified in a number of ways. In the original Jenkins Radiomovie equipment, the film passes through the projection aperture with a continuous motion, unlike the intermittent motion of a standard film projector, (see Figure 2). As the film passes through the aperture, the image is scanned from left to right, by a very small point of light (flying spot), from a scanning disk.

As each line is scanned, the film steadily moves downward so that the following scan covers a slightly different portion of the film. Each frame is scanned a total of 48 times. The scanning disk contains 48 matched F3.5 lenses, spaced the width of the film and mounted in a circular pattern. It rotates 15 times per second (900 RPM). Due to gearing between the disk and sprockets, with each rotation of the disk, one frame of film passes smoothly through the aperture and 15 frames are scanned each second.

With lenses in the disk arranged in a circular pattern, the disk can provide only the horizontal scanning motion to the spot. In the Jenkins system, the vertical scanning is the result of the continuous motion of the film.

Jenkins' first lens disk cost over $6000, and this was at a time when an aperture disk cost less than $30. In later Radiomovie machines, he was able to use an aperture disk by placing a projection lens between the fim and the disk and reversing the positions of the arc light and photoelectric cell, (refer to Figure 3). The projected image was focused on the surface of the disk, where it was scanned by the circular pattern of holes in the disk. Because the hole pattern is circular, it was found that the disk diameter could be halved by using only half the number of holes (the space between the holes remaining the same) and operating the disk at double the speed. This is the type of machine that was selected for this project.

Fig. 3



The Bell & Howell projector mechanism is driven by a reversible, series wound, variable speed motor that also operates the cooling fan for the 750 watt projection lamp. The entire motor armature, field and reversing switch assembly were removed. Attached to these parts were the blower impeller and drive gear to the projector mechanism. Going further, those parts associated with the film shuttle or claw, shutter and the projector base were also removed. The motor and all of these parts were all discarded. Finally, the lamp and projection lens were removed, leaving the projector ready for modification.

In the projector mechanism, the shaft of the gear that was originally driven by the motor was lengthened and extended out the front of the gear case. A ball bearing shaft support was added outside the case, with enough space between the case and bearing to mount a 16 tooth timing belt pulley. By counting the number of turns of the shaft extension,

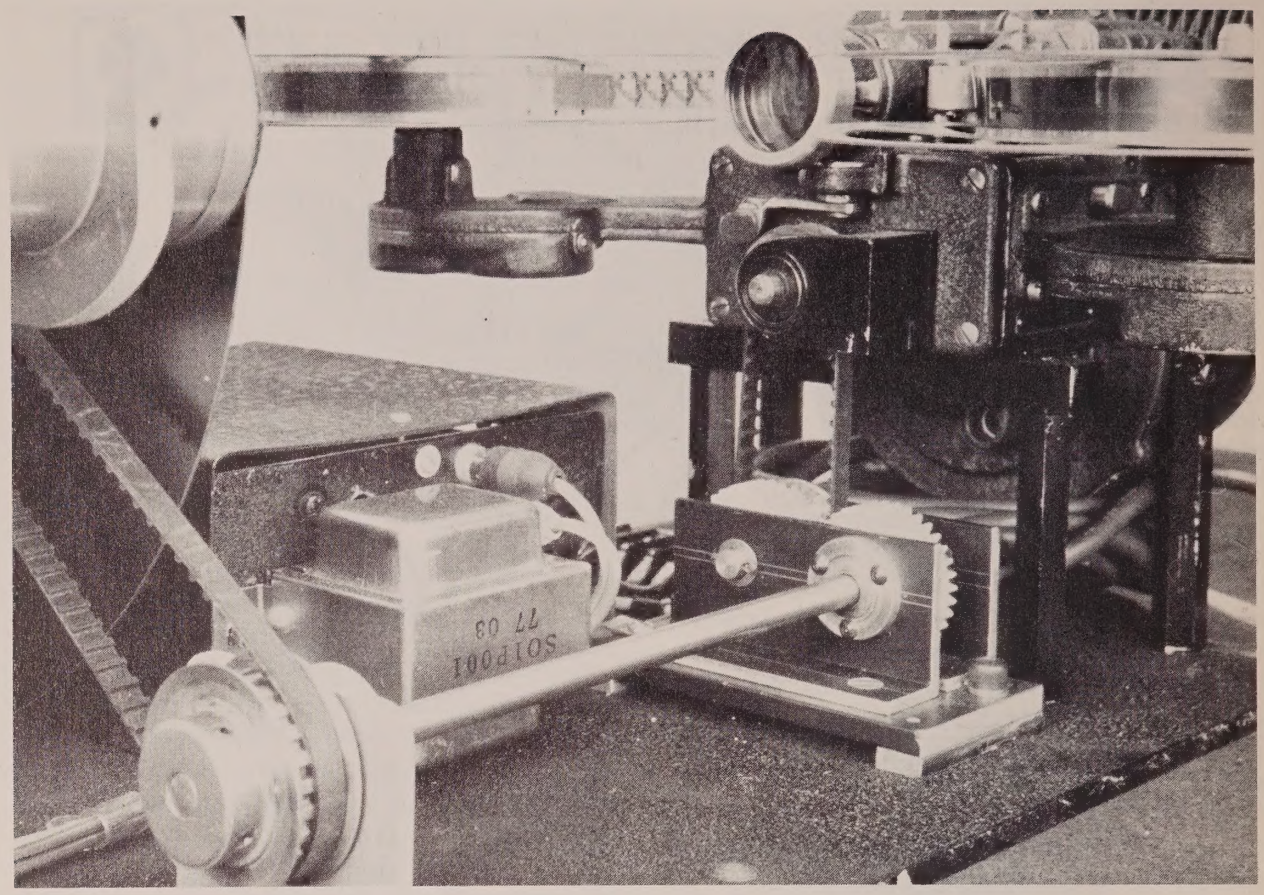


Figure 4.

necessary to move 15 film sprocket teeth past a given point, it was determined that a 900 rpm input was required for the projector (see Figure 4).

Since the film would now be pulled through the film gate by the lower sprocket, it was necessary to add an idler pulley between the gate and sprocket. The idler is supported by a bracket added to the projector casting. It is located just below the gate, with the back edge of the pulley in line with the gate.

Because the lamp wattage was reduced to 30 watts (lamp type BKV), only a small volume of cooling air is required for the lamp. A 2" diameter fan was installed in the blower housing.

The original 750 watt lamp was intentionally broken and the base salvaged. On this base, a single contact lamp socket was mounted so that the filament of the 30 watt lamp was located in the same relative position as the original lamp.

In order to minimize the over all size of the assembly, the projector is mounted on its side. It was originally mounted at a single point on a cast aluminum stand. Now it is supported on that point plus three other points which were added. The projector is bolted to a 12" by 18" by 5/16th aluminum alloy plate using four large aluminum spacers. This plate provides a rigid support for all components of the assembly, reducing vibration which might otherwise degrade picture resolution (see Figure 4).

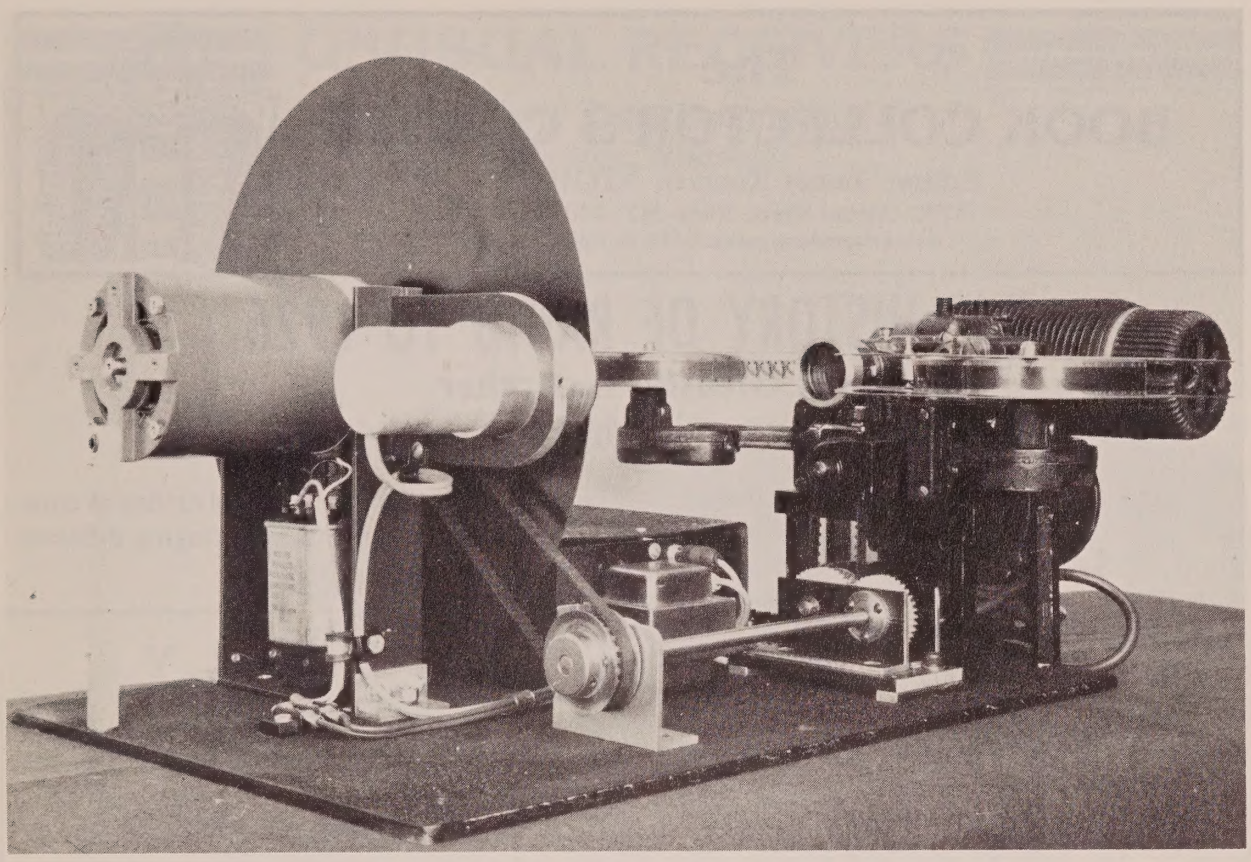
The motor selected to drive the assembly was a hysteresis, synchronous type, rated at 1/25 hp and operating at 1800 rpm. It would drive the disk directly and through appropriate gearing, also the projector.

The motor is mounted on the aluminum plate at a height that places the axis of its shaft in the same plane as the centerline of the projector lens and offset 5.5" in the direction of the lower sprocket. In this unit, this provides adequate clearance for a twelve inch diameter disk. Attached to the motor mounting structure is the photoelectric cell housing, also containing two condenser lenses and a mask. The opening in the mask measures 1.5" by 0.25". The hub for the disk includes a 12 tooth timing belt pulley. When mounted, the disk is located 7" from the front element of the projection lens.

In order to achieve a focused image on the disk, it is necessary to permanently attach an appropriate plano-convex lens to the front of the projection lens. The width of the focused image is the same as or slightly less than the space between the holes in the disk.

A timing belt connects the motor to a line shaft driving a pair of reversing gears at 900 rpm. The output gear drives a timing belt pully on the same shaft which is connected by belt to the projector.

The electronics assembly is mounted in a metal box and contains a buffer/amplifier for the photocell and power supplies, one of which furnishes DC power for the projection lamp. Toggle switches control the motor and lamp. The televison signal output is 2 volts peak to peak. Positive or negative going signals are available.



General view of equipment.

The bakelite scanning disk contains 24 equally spaced .020 diameter holes on a 5.5" radius. The disk can be removed from the hub without disturbing the remainder of the equipment. Top and side views of the completed assembly are shown on the cover page.

When the unit is being transported, the disk is stowed, along with two reels of film, in the lid of a wooden carrying case. The case also contains a spare lamp and some small tools. The complete unit weighs 45 pounds and measures 24" by 15" by 10".

This unit has been operated with two different receivers and the results have been impressive. When silent cartoons or half tone films are shown, the resolution is very good and the motion enhances it even more. The small type in titles used between scenes may not be discernible, but the main and end titles can be easily read.

Additional information about mechanical television in its various forms is available in the following books:

"The Mechanics of Television" by Peter Yanczer (1987)

"Taylorvision" by Edmund E. Taylor (1984)

HISTORIC FORM

This notice was found in some material recently donated to AWA Museum by J. J. Mueller. He told us that during WWII there was a serious shortage of tubes and parts. This resulted in servicemen using their ingenuity in finding replacement parts and tubes. New components were on priority with civilian use at the bottom of the list.

The notice (certification) enabled one to replenish his scanty supplies with some sort of legal priority. Mueller worked at H. L. Dalis & Company, a large supplier of radio parts in N.Y.C. One of his jobs was to make correct substitutions on parts and tubes.

SEARS, ROEBUCK AND CO.

Shop at Sears and Save

CHICAGO

Dear Customer

Government regulations governing the sale of radio tubes and radio repair parts require that the purchaser sign a certification as to the use which is to be made of the tube or repair part.

Please fill in and sign the certification and send it to us by return mail.

Yours truly

SEARS, ROEBUCK AND CO.

Sears, Roebuck and Co.

I hereby certify that the part (s) specified in my recent order are essential for presently needed repair of electronic equipment which I own or operate.

_____

(Signature)

The BOOK COLLECTOR'S CORNER

Editor: James Kreuzer, N2GHD
6270 Clinton Street, Elma, NY 14059
All correspondence require SASE for reply

THE HISTORY OF RADIO TO 1926

by Gleason L. Archer

1938 1st edition - 421 pages - 19 illustrations

The History of Radio to 1926 commences with early forms of communication, beginning in 300 B.C. and ending, as the title indicates, in 1926. The work is divided into twenty chapters, containing 189 numbered sections, each covering a different subject. This provides an excellent mode of expressing the historical views, without useless repetition.

The author, Gleason Archer, was well qualified for the task of documentation in radio history. He lectured on coast-to-coast networks for five years. A personal acquaintance of many wireless pioneers, he was able to uncover many facts never before published. He secured first-hand accounts of the important events leading to the establishment of the radio industry.

This book traces the evolution of electricity and the inventions in telegraphy and telephony. The initial four chapters present the important prelude to wireless discoveries.

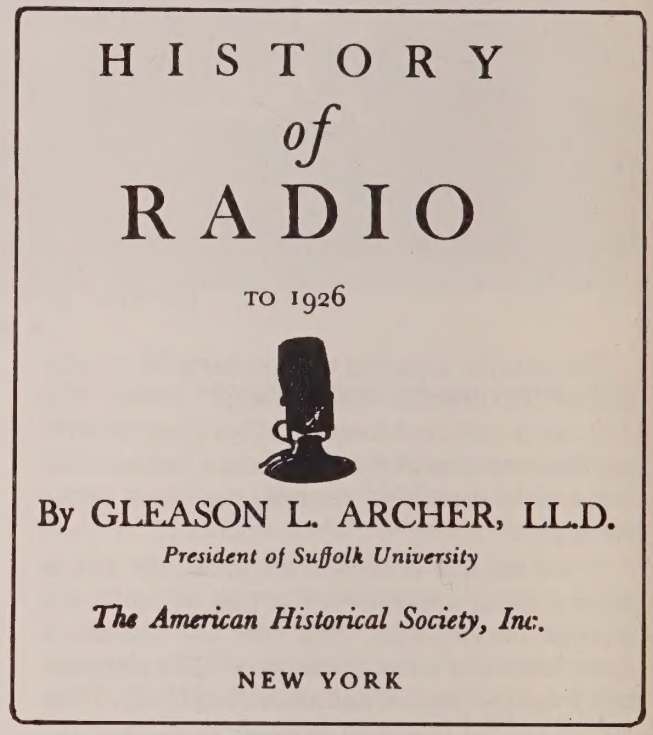
The chapter on the Atlantic Cable is especially noteworthy. It details the many trials and tribulations involved in providing the first electronic communication between continents.

The fifth chapter leads into the early attempts of wireless transmission; across the Atlantic signals didn't require a cable.

Wireless telegraphy is followed from its infancy to commercial development by such companies as United Wireless Telegraph, NESCO, and the Deforest Wireless Company.

International rivalries are emphasized, along with the neverending patent litigations. This is my favorite section – it presents different wireless systems and the, to us, primitive gear developed and marketed by the pioneer companies.

The next chapter advances the use of wireless during World War I. In the interests of the war effort, companies banded together, sharing knowledge and patents for the country's welfare. Wireless became a viable means of communication, instrumental in bringing different people and countries together.



Two chapters are devoted to the contest for American control of the industry in the postwar period. These efforts are concisely described, most successfully in the portrayal of RCA's formation.

Radio broadcasting's beginnings are examined, questioning the authenticity of the claim to precedence of Westinghouse station KDKA. Other early stations are mentioned as well; the war in control of the airwaves was on!

Covered are the early attempts of the various stations to capture the interest of the listening public, as well as the famous "*Radio Boom*", which swept the nation in 1922. Radio stations flourished, and advertising became increasingly important.

Gleason provides the reader with an accurate account of the development of radio, along

(Continued on page 17)

UNUSUAL RECEIVERS

Editor: Dan Boucicault
Madison, Wisconsin

STANDARD MICRONIC RUBY MODEL SR-G430

When this receiver was released in 1962, it was billed as "*the smallest radio in the world*". It uses 7 transistors plus a crystal diode and mounted in a 1⅞" x 1⅝" x ¾" case. Made by the Standard Radio Corporation of Japan, it has a ferrite rod antenna and a 1½" loudspeaker with a *gold-plated* grill! It came in a silk-lined presentation case with a leather carrying pouch, earpiece, carrying strap and two mercury-type disc batteries.

It fits neatly in the palm of my hand. Other than some green corrosive residue in the battery recess, mine is in perfect condition. Unlike the larger, more common handheld 9-volt transistor radios, which are worth only a few dollars, this rare and unusual receiver is valued at $75. The set is pictured and described on pages 201 - 202 in Jonathan Hill's book, "*Radio! Radio!*"

SAXTON WRIST RADIO A-990

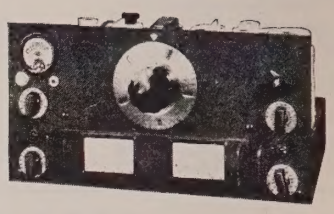
This miniature receiver is in the same category as the transistor set built in a pair of eyeglasses I described on page 36, February 1987 *OTB*. Although the set works, I question its practicability. Workmanship and reception does not compare with the SR-430 at left.

The A-990 was made in Hongkong and measures 2" x 1½" x ⅝" and uses (2) Type 186 battery cells. A midget speaker gives marginal response. An earplug is optional. The set is worn as a wristwatch with a ⅝" black strap.

OTB MATERIAL: If you plan to write an article for the OTB, keep it short. All material running over two pages may be reduced or not printed at all. If you plan a lengthy article, write the Editor for approval BEFORE you start.

The COMMUNICATION RECEIVER

Editor: Bill Fizette, K3ZJW
R.D. 1, Box 55, Henryville, Pennsylvania 18332
All correspondence requires SASE for reply



THE NATIONAL COMPANY'S "AGS"
A COMMERCIAL COMMUNICATIONS RECEIVER

INTRODUCTION

In October, 1932, the National Company of Malden, Massachusetts, carved a niche in radio history when they introduced the AGS short wave communications receiver. This superlative device was a product of the conceptual engineering genius of James Millen and his development team combined with the unique manufacturing capabilities of the National Company.

Inside and out, the AGS was a marvel of mechanical and electrical design. The front panel was balanced in appearance with only a minimum of controls. All fabrication work was of the highest quality, fully reflecting the accumulated experience and machine-shop approach of the National people to the manufacture of communications receivers. Each receiver was hand-crafted with precise frequency calibrations built-in.

A parallel can be drawn with the rapid advances in present-day computer technology. The AGS in its various forms lasted for only two years and then was displayed by newer designs, using more modern components and concepts, from National as well as its competitors in the rapidly expanding field.

More important to the National Company, however, was that during the brief lifespan of the AGS it served as a proving ground for the concepts and techniques which appeared in at least two of National's later receivers, the FB-7 and the very famous and long-lived HRO.

Charles Fisher, by his very fortunate acquisition of a complete AGS-X in remarkably good condition, has been inspired to write the following article.

This historic set was developed for the U.S. Department of Commerce for A-irport G-round S-ervice and similar professional applications, and was National's first venture into products of such quality. It was introduced in the fall of 1932, and in due course was widely advertised in the jobber catalogs and *QST* as the ultimate ham set, available with band-spread coils. Most specimens were probably bought for commercial use, and it is a rare set today.

The only limitation on wide sale of the AGS was the price - a bit over $200 complete with the power supply and coil storage panel. The crystal filter option cost an additional $18.

The AGS design had much in common with the "*Single-Signal Super*" described by J. J. Lamb in *QST* of August and September of 1932. Notable and perhaps unique in a short-wave set for the date were the IF of 500 kc, a tuned radio frequency stage ahead of the first detector, and automatic volume control – controlled by a separate tube – on four stages. Elegant mechanical design permitted calibration and alignment to be virtually 'built-in' at the factory. Outwardly the emphasis was on simplicity of operation.

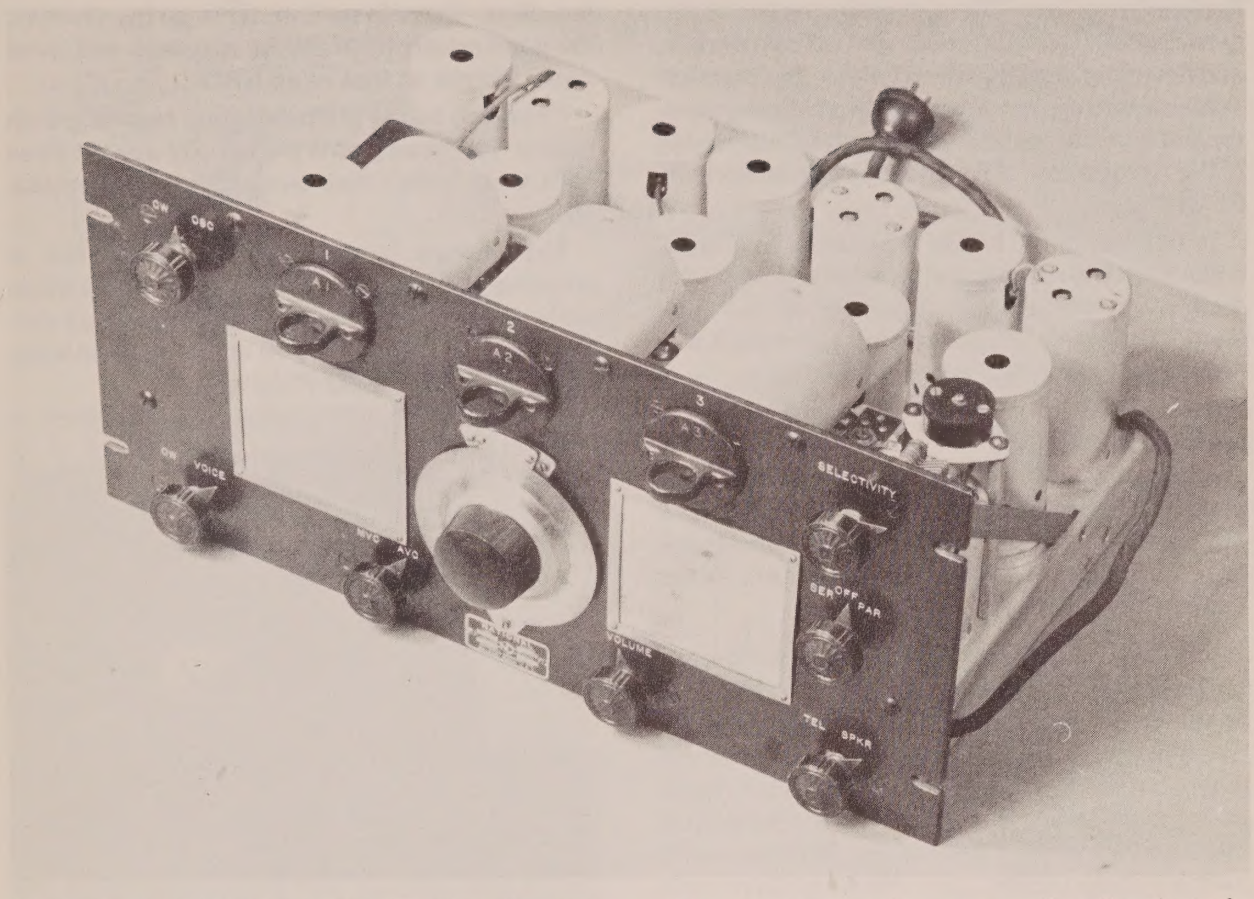
The receiver is of massive construction. The 3/16" aluminum rack panel is bolted to a ⅛" bathtub chassis; the bottom panel and tuning condenser shield structure are of 3/32" aluminum. The three tuning condensers are ganged by rack and pinions with spring-loading for anti-backlash. Tube sockets, shields, and hand-labeled resistors familiar in other National sets are used, with the exception that the 1 mfd **non-inductive** by-pass condensers were made in Germany by Flechtheim, not marked as Tobe-Deutschman imports.

There were several versions of the AGS:

1. The "*original*" model has the maker's label... almost 4" long... with the U.S. Government notation. No BFO adjustment control. Frequency range 2000 kc to 15,000 kc. Tubes: 7-36's; 1-37; 1-89 (not including the 80 in the power supply).
2. As above, but with a short plain National label.
3. As above, with the BFO adjustment added to the upper left corner of the front panel.

– At some early stage the coil ranges were changed to 1500 kc to 20,000 kc.

4. Crystal filter option, designated the AGS-X, with controls added at the upper right of the panel.



All versions to here have **two** RF trimmers and short (3") IF cans with side-by-side compression trimmers.

– By mid- or late 1933 tall round IF cans with air trimmers, as in the early FB7-A's and the early HRO's, were incorporated. (Note: In the *QST* articles referred to above, Lamb advocated air trimmers in IF transformers for stability reasons.)

5. The AGS-X with a 78 in the RF stage and only one RF trimmer. It included the taller IF's and was pictured in *QST* for June 1934.

6. A 1935 catalog (see comment at end of article) lists the AGS and AGS-X with 3 type 78's.

The nine tubes of the receiver proper have the following functions: TRF stage or preselector; oscillator; first detector; 1st and 2nd IF's; 2nd detector; AVC control; audio output. The use of sharp cut-off 36's in an AVC system suggests that the AGS was far advanced in development by early 1932, since the remote cut-off 39 with similar power requirements was available as early as February, 1932. Two possibilities might be, first, that there was a hum problem similar to that which prevented the use of the early 6C6 and 6D6 in the first AC-powered HRO's, and second, that the National people had an important body of experience with the reliability of the 6-volt 36 tetrode.

The AGS-X which inspired this article surfaced just recently after 50 years under one roof. Before that it was reportedly used by the old Tropical Radio Company, as subsidiary of the United Fruit Company. It was in fine condition except for the usual troubles with National power supplies ... in this case the transformer as well as the electrolytics. With the set was an original **typed carbon-copy** instruction manual, and an original copy of James Millen's 1933 promotional booklet on the AGS. The set was healthy, with every component original and OK, generating the temptation to '*peak it up*'.

RF alignment of the AGS is unusual in that there is only **one** trimmer for each band, in the oscillator coil. Assuming the IF alignment is correct, these oscillator trimmers are adjusted to give the correct calibration for each range according to the chart on the front panel. Next, one of the two high bands is tuned near the top of its range, and the trimmers on the RF and mixer stages adjusted for maximum output. The instructions assert that the L's and C's are so precisely adjusted at the factory as to assure that **this is it**. RF trimming, once done for one set of coils, must be assumed to be right for all! The Millen booklet gives persuasive supporting detail. Complete alignment instructions, incidentally, may be found in Riders, Volume VIII.

In this late AGS-X the 2nd detector trimmer has been eliminated from the design (see *QST* photo, June 1934). It was evidently decided that the constants could be so exactly factory-tuned as to require only tuning the IF's, calibrating each oscillator to the non-adjustable mixer, and trimming the RF stage. In fact this still works, with the reservation that, as in most old radios, some constants have mysteriously changed ... in this case, loss of inductance. (This is perhaps due to

National's low-loss R39 material becoming slightly conductive over the years with air-borne salts, and reflecting shorted micro-turns.) The practical solution is to explore around with a signal generator and tune the oscillator to locate the best tuning of the 1 st detector. After that one trimming of the RF suffices.

In this set, some bands are nearer the original calibration than others, but all work very well, with surprisingly good image rejection on the high bands; better than 25 db was measured at 18 mc.

The original Bliley BC-3 crystal holder was marked "522 kc - 75 degrees". The IF's were found to be tuned to 522 kc, but the original crystal was cracked. A minature modern crystal blank (WW II surplus - 250 kc) was temporarily fitted and after the IF's were retuned, the performance of the circuit – the same as shown in the Lamb article – was observed.

The filter is definite and aggressive in action, the only adjustment being SELECTIVITY, which has about the same effect as on an early HRO. With the mode switch set at SER (series), extreme '*peaky*' selectivity prevails, ideal for single signal code reception and exact logging. If selectivity is at minimum, speech is readable. With the mode switch in PAR (parallel), the selectivity curve has a deep and narrow rejection notch on center. An interfering heterodyne on a broadcast signal can be '*notched out*', with critical operation of the main tuning dial, so that the wanted signal is readable. There is no phasing control, but in spite of that the circuit works very well.

Although the AGS alignment instructions call for an IF of 500 kc, we feel that 522 or 525 is correct for the AGS-X. Lamb suggests 525 kc as a precaution to assure that no BFO harmonics land inside a ham band. In the straight AGS, the user can put the IF where he pleases (within design limitations) but not so when there is a crystal filter. Another reason to avoid the 500 kc might be to prevent interference with another set tuned to the international distress channel. The authors would appreciate learning crystal frequencies in other AGS-X sets.

NOTE: Calculation and experiment show that for tracking and calibration there is no no observable difference between 500 and 525 kc, except at the bottom of the lowest band.

To one accustomed to operating a well-aligned early HRO, a comparable AGS offers surprises.

There is only one gain control. In the MVC (manual volume control) position it takes the output from silence to deafening with very small motion; it's almost useless except for very low general signal levels. By contrast, on AVC the control is very flat and manageable.

Selectivity at first seems broad, but this is the result of the powerful AVC which flattens the tuning effect. There is no S meter to go by. On MVC the good selectivity becomes apparent, and is not much inferior to that of an HRO.

Changing bands is a production requiring both hands. The good part is the spooky way the three coils seem to find their own way into the receptacles.

The famous National Velvet Vernier dial is amazingly serviceable. It works smoothly, with no rubberiness, and can actually be read to half divisions, giving a scale of 3000 units – not bad when compared to the HRO PW dial.

A quaint feature of the AGS, which is a very serious professional looking piece of equipment, is the style of the small knobs. They are the same as on the earlier low-priced National sets, "*decorator*" modeled and detailed, incongruous on the AGS panel.

Finally, a word of caution when operating an AGS with the earphones plugged in. The terminals are **always** at B-plus, regardless of the position of the TEL-SPKR switch.

We are speculating that the AGS was manufactured between the extreme limits of October, 1932, and the end of 1934. As soon as the HRO was available, the AGS was eclipsed.

We further speculate, on the basis of the few serial numbers available to us, that about 500 sets were made. The walnut box accessory (*QST* June 1934) suggests a desperate effort to unload foreseen end-of-production merchandise to the carriage trade. The beautifully made shielded box, by the way, is styled exactly like those enclosing General Radio test equipment of the same and later periods.

Charles P. Fisher

IDENTIFICATION and VALUE

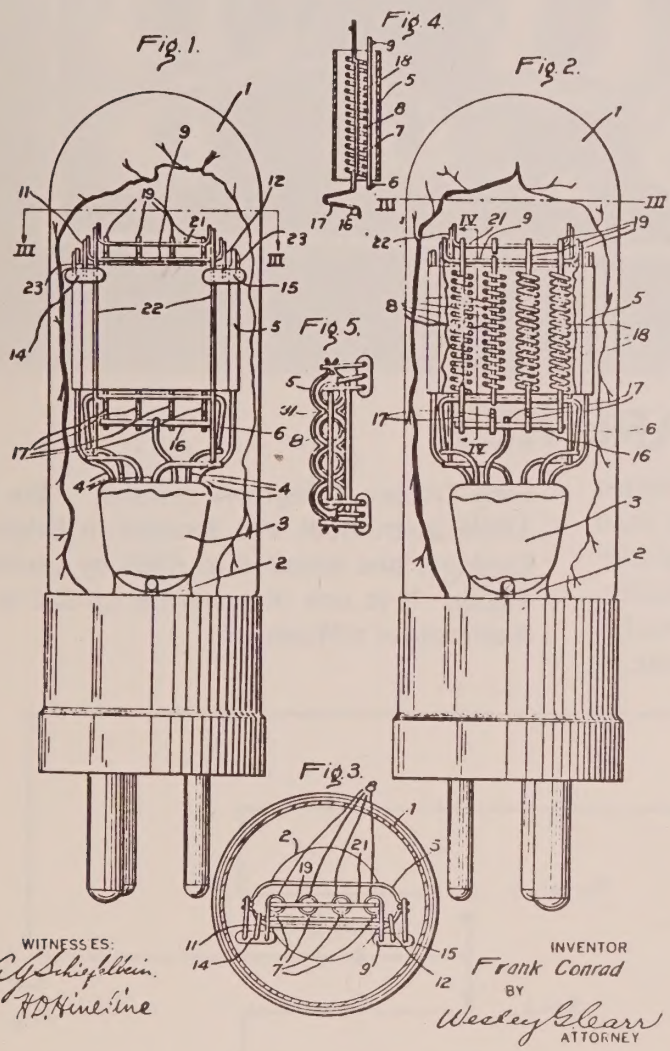
Editor: Lauren Peckham
Ormiston Road, Breesport, NY 14816
All correspondence requires SASE for reply

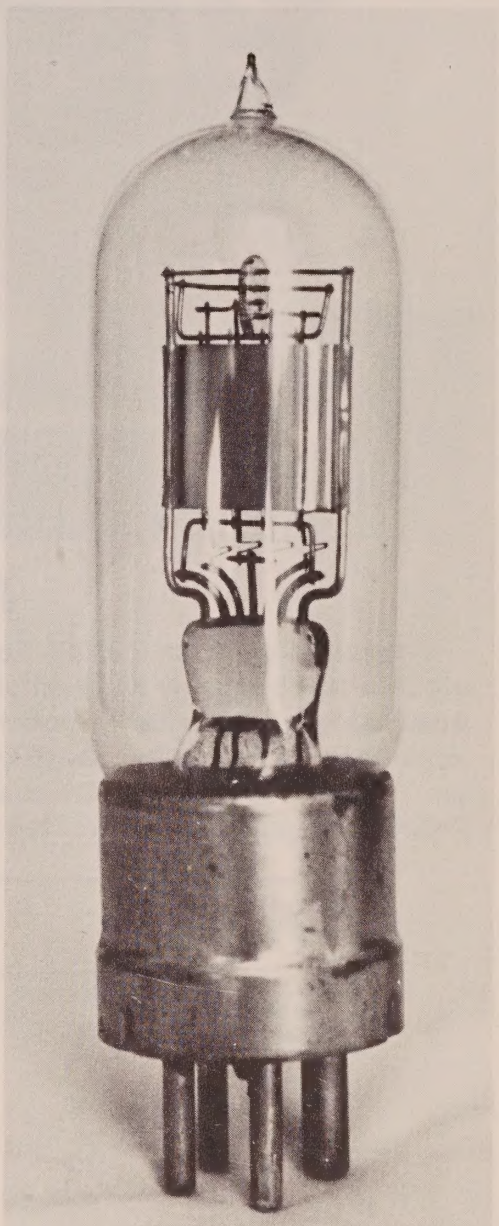
UNUSUAL WESTINGHOUSE TUBES Part I

April 16, 1929. F. CONRAD 1,709,659

MULTIPLE ELECTRODE VACUUM TUBE

Filed Sept. 27, 1924



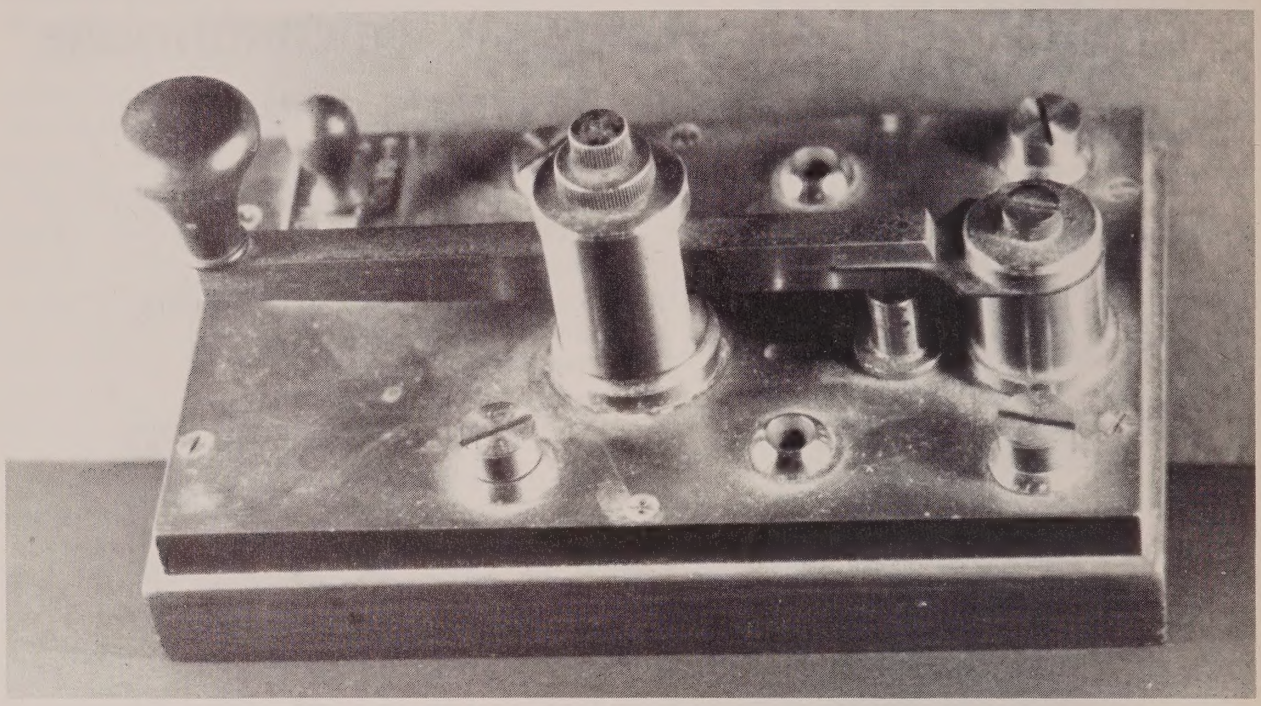


Most collectors and historians are familiar with tubes made by the Westinghouse Company and marketed through the Radio Corporation of America. Probably the most famous of these is the WD-11 and possibly the lesser known WR-21. However, there were other tubes manufactured in very limited quantities which never saw wide distribution. The two photos illustrate a tube of unusual construction designed by a famous Westinghouse engineer who was also a pioneer in radio broadcasting.

Frank Conrad noted in 1924, that the usual vacuum tube could not satisfactorily operate a loud speaking radio telephone receiver at full volume. He states that his invention provides a means whereby the equivalent of several tubes can be connected in parallel and housed in a single envelope. He used a bulb and base of the same dimensions as the WD-11. Also mentioned is the fact that the filament could be operated with a single no. 6 dry cell. All

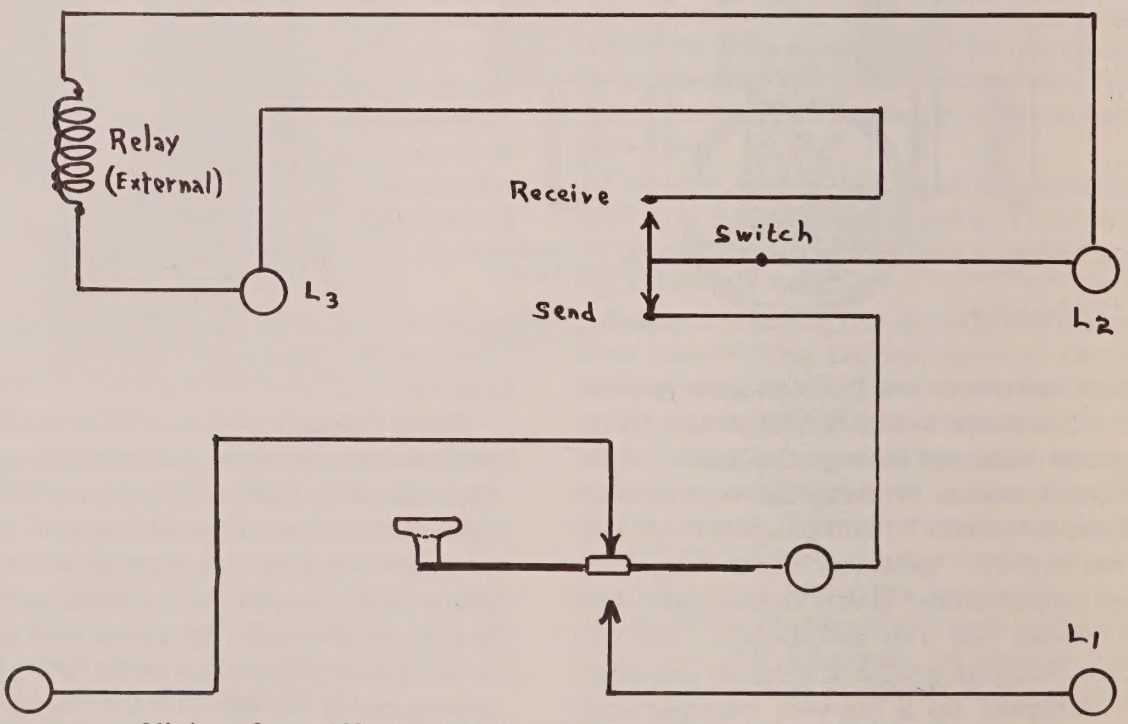
(Cont. on page 41.)

UNUSUAL EQUIPMENT IN AWA MUSEUM



RARE KEY

A feature program at the '87 Conference will be a talk by Murray Willer on other than American keys. It is a highly specialized subject seldom covered by the average key collector. Pictured is a rare Differential Duplex Polarized telegraph key required to operate an early Duplex Telegraph system. This pre-1900 instrument was located in Brighton, England, and donated to AWA by Lauriston Taylor. It is one of many on exhibit in the Association's Museum.



Wiring for Differential Duplex Polarized Telegraph Key.
A.W.A. 84.42 #907

IDENTIFICATION and VALUE

Editor: Lauren Peckham
Ormiston Road, Breesport, NY 14816
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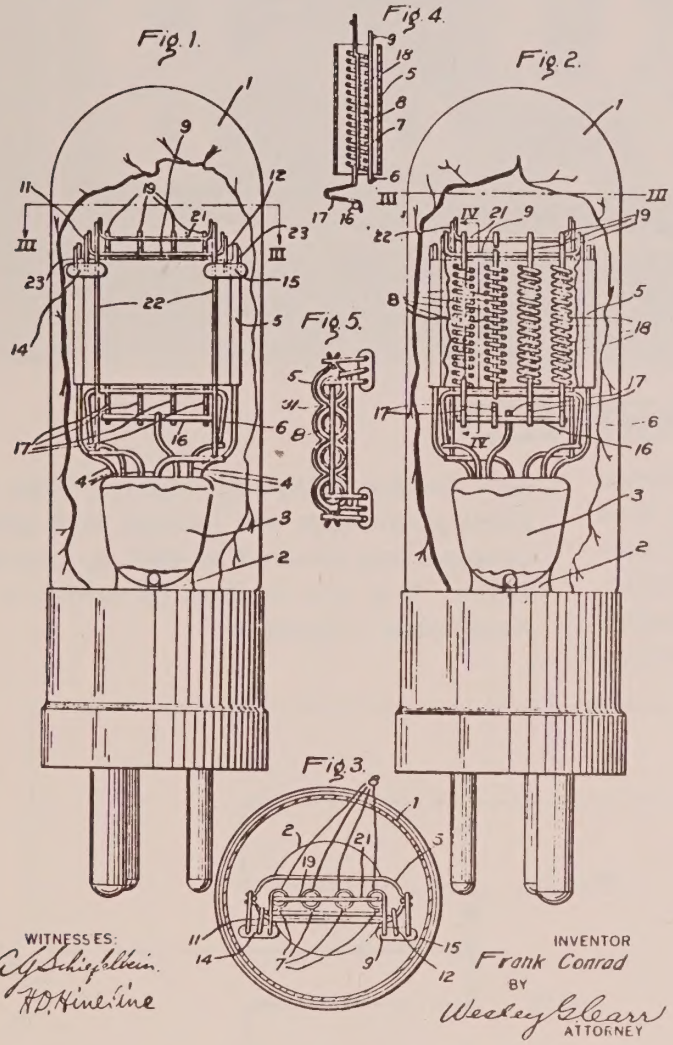

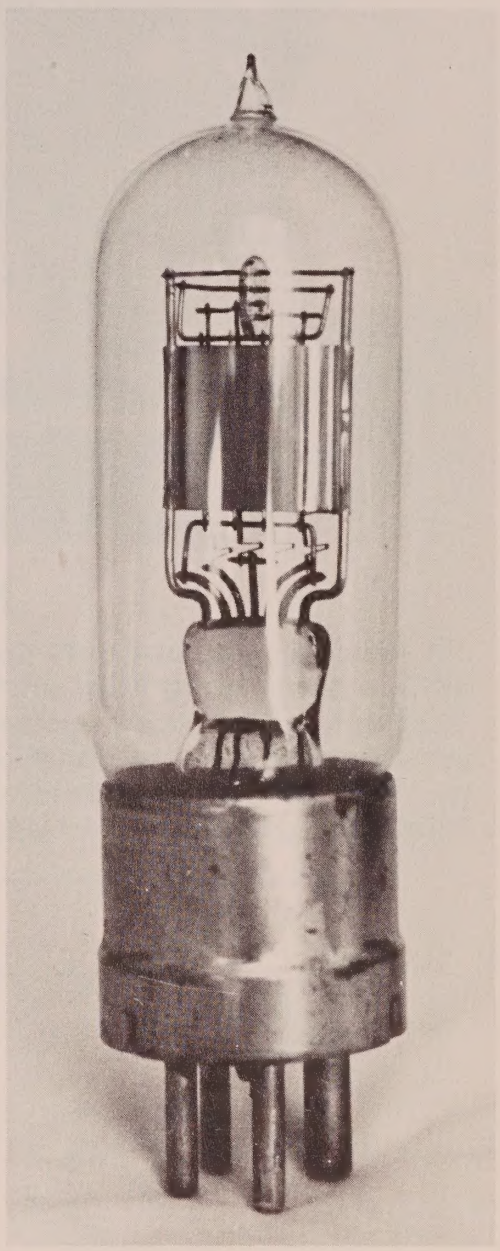

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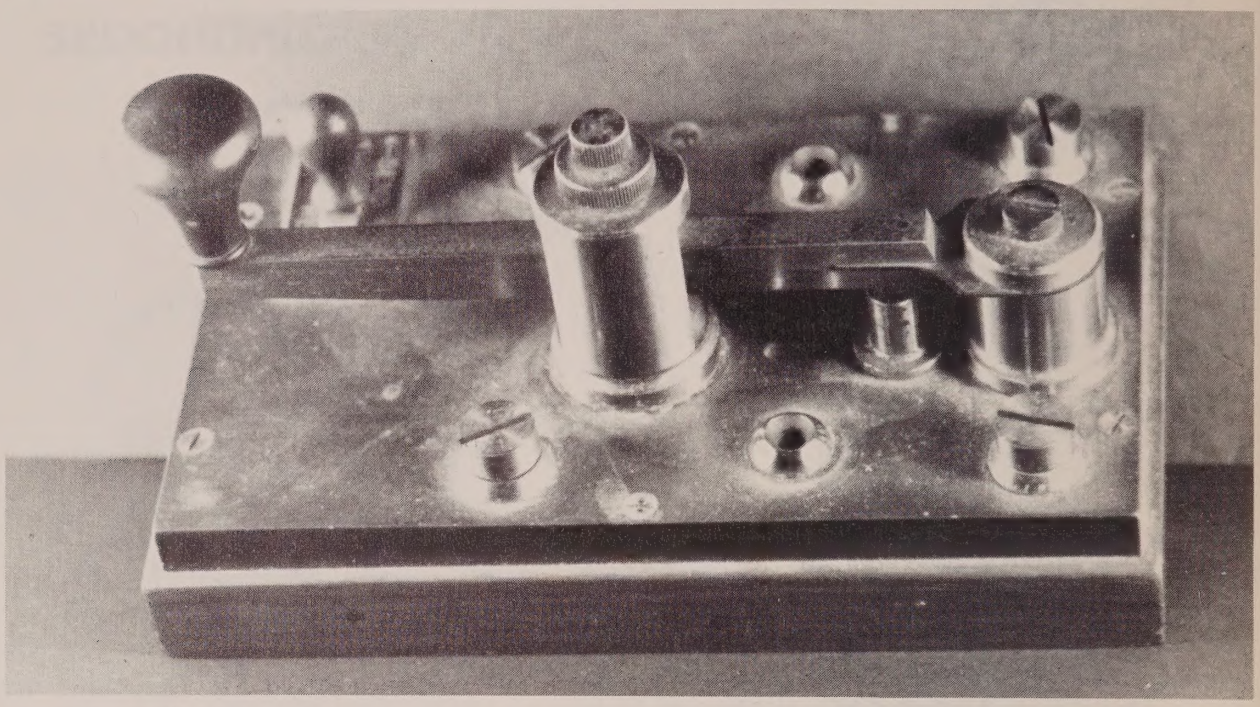

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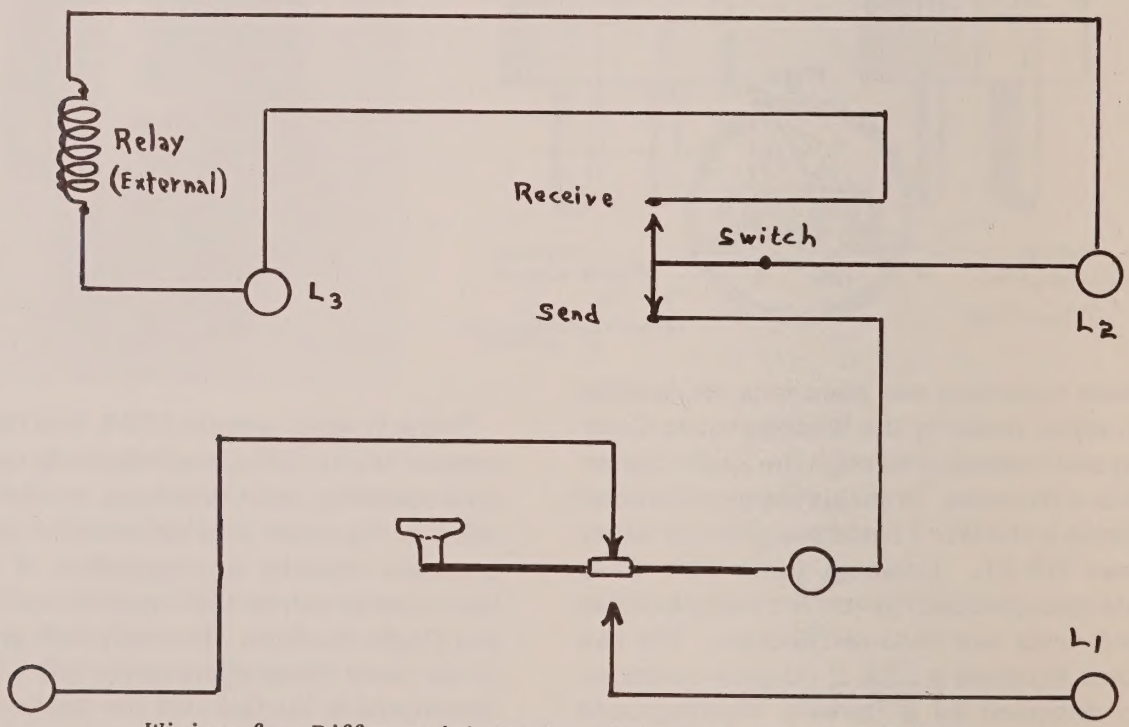


Wiring for Differential Duplex Polarized Telegraph Key.
A.W.A. 84.42 #907

ANNUAL CONFERENCE

The Antique Wireless Association

"An amateur organization devoted to the history of wireless"

AFFILIATE

SHERATON INN
CANANDAIGUA, N.Y.
September 1987

23 Wed. 24 Thurs. 25 Fri. 26 Sat. 27 Sun.

On Rt. 20 directly on beautiful Canandaigua Lake, 770 South Main Street, Canandaigua, N.Y. 14424

Registration with meals MUST be made through Secretary Dick Ransley, 17 Sheridan Street, Auburn, N.Y. 13021 BEFORE Sept. 11. Unlimited registration at door. (Note: Absolutely no admittance to any activity without a Registration BADGE!)

This is our 26th Annual Conference. It is an occasion when radio historians convene, exchange equipment and learn more about the development of radio. Canandaigua is located in upstate New York's beautiful Finger Lakes region. It is easily reached by car or by plane to the nearby Rochester airport. If you plan to fly, write for the best route from the airport to Canandaigua. Register early!

WEDNESDAY

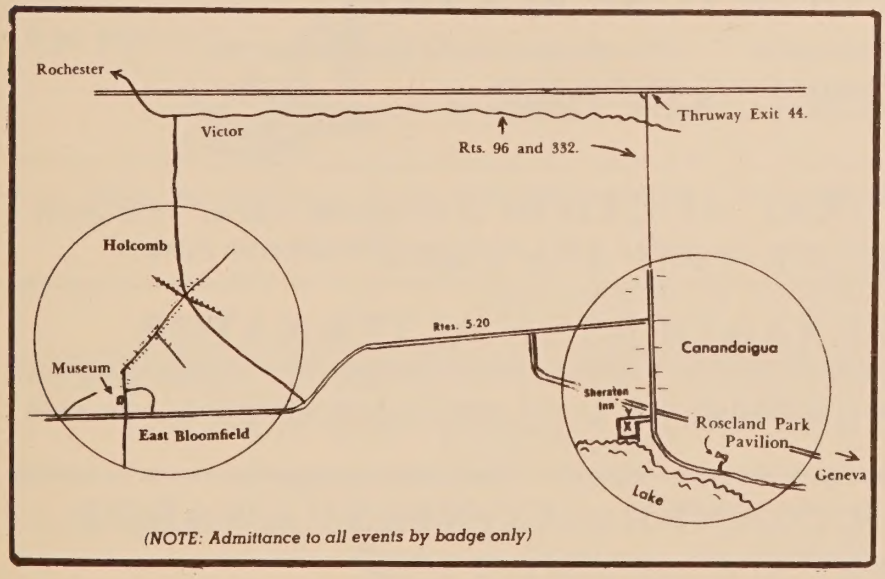
12 noon REGISTRATION in Lobby for Conference and Flea Market.

12 NOON FLEA MARKET (Wednesday noon through Sunday)

It has been requested that AWA confine its flea market activity to the designated area and the hours noted. These rules will be rigidly enforced on all Sheraton property. Please co-operate. Members are strongly advised to register in ADVANCE. This will allow the committee to prepare your flea market card in advance and also save you money. Registration starts at 12 noon in the Sheraton lobby. AWA not responsible for sales or tax.

7:00 - 9:00 PM – REGISTRATION in Lobby for Conference and Flea Market.

7:00 - 10:00 PM – AWA MUSEUM OPEN (*East Bloomfield, 6 miles East, Route 5*)



(NOTE: Admittance to all events by badge only)

OPEN HOUSE

A.W.A. ELECTRONIC COMMUNICATION MUSEUM
East Bloomfield, N.Y.

VISITING HOURS

Wednesday, Sept. 23
7 to 10 PM
Sunday, Sept. 27
9:30 to 11:30 AM
and
2 to 5 PM

The Museum will NOT be open Thursday, Friday or Saturday.

THURSDAY

8:30 AM – **REGISTRATION** in Sheraton Lobby for Conference and Flea Market

3:00 PM – **The GODDARD REPORT** (Technical session)

Bud Hall (K2LP) will give an illustrated paper on the little known Collins-RCA patent controversy of the 30's. A first time report.

4:00 PM – **HIGH POWER BROADCASTING**

Ozzie Jaeger, W6AD

The speaker will take you behind the scenes of several super-power broadcast stations (VOA, super-power WLW) and tell about unusual technical requirements.

7:00 PM – **Check-in for communication equipment.**

7:30 PM – **THEREMIN DEMONSTRATION**

Floyd Engels (*Tiffany Room*)

This program is different – a demonstration of an unique electronic musical instrument perfected nearly 60 years ago. Should appeal to both men and women alike.

8:00 PM **COMMUNICATION RECEIVER AUCTION**

The equipment in this auction is restricted to communication equipment made after 1930, such as National, Hallicrafter, Hammarlund, etc., (receivers and transmitters).

8:30 - 10:30 PM – Registration and Main Auction check-in (*Early preview*)

FRIDAY

8:30 AM – **REGISTRATION** in Lobby for Conference and Flea Market

9:15 AM – **LADIES' TRIP** (*with luncheon*)

8:00 - 10:00 AM – Check in **OLD EQUIPMENT CONTEST** (*Tiffany Room*)

8:00 - 9:00 AM – Late Registration for **AUCTION** and preview of items.

9:00 AM – **AMATEUR RADIO SEMINAR** *Director's Room*

Ken Gardner, W2BGN (New Hartford, New York) and Bud Hall, K2LP (Eastham, Massachusetts)

The program will consist of a review of the OT Contest, scoring and equipment used. General discussion on Net operation and other subjects of interest to the amateur. Members are encouraged to bring early amateur equipment for display. Added attraction: **The Story of 3ZO**– a superpower amateur station of the 20's

10:00 - 11:00 AM – **VACUUM TUBE AUCTION**

Bruce Roloson, Auctioneer **(AWA not responsible for merchandise or tax.)**

11:00 - 12 Noon – **GENERAL AUCTION** of equipment.

1:00 - 4:00 PM – **GENERAL AUCTION** of equipment. (*Note: 10% of all auction sales donated to AWA Museum Maintenance Fund*).

4:30 PM – **The ALEXANDERSON ALTERNATOR**

Glen Fuller, N2EXL, will show a historical movie of several one-time VLF stations using the Alexanderson alternator. He will conclude with a technical description of the unique physical properties of the alternator. (*Director's Room*)

7:00 PM – **PIONEER DINNER** and **CONTEST AWARDS**

9:30 - 10:30 PM – Auction payment at Registration Desk in lobby.

SATURDAY

9:00 AM – ## COLLECTING VHF EQUIPMENT

John Nagle, K4KJ

Our speaker will tell and identify early UHF-VHF equipment which is becoming highly collectible. A first-time subject for AWA.

10:00 AM – ## DE FOREST and the AUDION **Bruce Roloson**

The speaker has reviewed both past and present information on this historical subject. A program for historians and tube collectors.

11:00 AM – ## MOBILE RADIO DEVELOPMENT

Stuart Meyer, W2GHK

An exploding industry will be examined from the earliest days to present cellular phone development by a nationally known authority. Of general interest to all.

12:30 PM – LADIES' LUNCHEON and PROGRAM *(Tiffany Room)*

11:45 - 1:15 PM – Special Luncheon in dining room overlooking lake.

1:30 PM – ## COLLECTING FOREIGN KEYS

Murray Weller, VE3FRX

The speaker will concentrate on the fascinating subject of radio and telegraph keys made outside U.S.A. This will be different. Don't miss it.

2:30 PM – ## MAKING RADIO TUBES

Dr. Rudiger Walz, Keklheim, Germany

A highlight of the program will be an original illustrated talk on making working radio tubes in a home workshop. In addition, our speaker will briefly discuss the exotic Loewe valve.

3:30 PM – ## SHOW and TELL **Mel Comer**

This is a popular program for the collector and restorer. Members will have an opportunity to learn firsthand how to build and restore early receivers and other equipment. They will also tell where to obtain hard-to-find parts.

7:00 PM –

GRAND BANQUET

This is the grand finale! An evening of fellowship and fun. Presentation of Annual Awards

Guest of Honor: DR. RUDIGER WALZ
President/Editor of *Funkgeschichte*

OLD EQUIPMENT CONTEST – *Tiffany Room*

(Note new location – directly across the main meeting room.)

Conference Chairman: Lauren Peckham

OLD EQUIPMENT CONTEST

LOCATION: We are most fortunate this year to have the large TIFFANY room directly across from the main meeting rooms. It is easy to find and an excellent location for displaying our equipment.

A panel of expert judges will decide the winners.

CHECK-IN TIME: Friday 8 - 10 AM

Guard on duty at all times. Equipment must be removed by Saturday noon.

RESTRICTIONS: Participants may enter a maximum of 3 categories.

Ralph Williams, N3VT, Contest Chairman

1987 IS TUBE YEAR

EQUIPMENT CATEGORIES

1. CRYSTAL & PASSIVE DETECTOR TYPE RECEIVERS.
2. ONE AND TWO TUBE RECEIVERS.
3. THREE TUBE RECEIVERS.
4. FOUR AND FIVE TUBE RECEIVERS.
5. SIX OR MORE TUBE RECEIVERS.
6. SPARK TRANSMITTERS AND RELATED ARTIFACTS.
7. VACUUM TUBE TRANSMITTERS.
8. VACUUM TUBES: RECEIVING TUBES MADE BETWEEN 1905 AND 1918.
9. VACUUM TUBES: FOREIGN, ALL TYPES MADE UP TO 1930.
10. VACUUM TUBES: TRANSMITTING MADE UP TO 1940.

IMPORTANT NOTICE: Small items including tubes,etc., MUST be securely mounted or in display cabinets.

--- RIBBON AWARDS ---
plus "Best of the Show"

Special PLAQUE AWARDS:

Eunice Thompson Award:
"Best of the Show"

Elle Craftsman Award:
"Best homemade receiver"

Transmitter Award:
"Best homemade or restored amateur transmitter or receiver"

LADIES' PROGRAM

Another fun excursion is planned Friday (9 AM-5 PM) See flyer for details. LADIES' SATURDAY LUNCHEON and PROGRAM will be held in the new small dining room directly across from the main dining room. There will be an entertaining program plus gift drawings. Sign up early!

MOTELS:

There are numerous motels in the area as well as a variety of fine eating places. For members who like fast-food establishments there are: Ponderosa, McDonalds, Perkins, Burger King, Wendy's, Kentucky Fried Chicken, and others within a short distance of the Sheraton.

Lakeshore Motor Lodge, 100 Lakeshore Drive, Canandaigua, NY 14424 (716) 394-4640
Miami Motor Inn, Rts. 5 & 20, Canandaigua, NY 14424 (716) 394-6700
Georgian Motel, Rte. 332, Canandaigua, NY 14424 (716) 394-2321
Motels in outlying areas: *(Telephone for vacancy and deposit info.)*
Sunrise Hill Inn (Thruway Exit 44) Rts. 96 & 332, Box 25237, Canandaigua, NY 14425 (716) 924-2131
Abbott's Motel (near Thruway Exit 43) Rte. 96, Manchester, NY 14504 (716) 289-3811
Chanticleer Motor Lodge, Rte. 5 & 20, Geneva, NY 14456 (315) 789-7600
Valley Motel, Rte. 5 & 20, Holcomb, NY 14469 (716) 657-6663

Special Buffet Breakfast in Sheraton Dining Room, Sunday.

A DIFFERENT TUBE COLLECTION

I have a small collection of tubes that are different. All stamped "*SECOND*", these are tubes that didn't pass inspection and were sold to employees at a nice discount. My first UX-210 was from the G.E. Employee store in 1929. I now have six different seconds: CX-301A, UX-200A, UX-210, CX-380, UY-227 and a UY-224.

Jack Nelson, W2FW
Schenectady, New York

MEL'S SHOW AND TELL

A favorite program for the collector at the Conference is Mel Comer's "*Show and Tell*". 1987 will be no exception. He has lined up Tod Prowell on restoring a rare superhet, Jim McKinnon will tell about restoration and performance of early receivers, Larry DiBarry will cover cabinet restoration and Mike Katzdorn will display some interesting pieces.

COMMUNICATION RECEIVERS 1932 to 1981

by Raymond Moore

$14.95 plus $2 handling

RSM Communications, Box 218
Norwood, Massachusetts 02062

This is a book for which the author had to do a great amount of research for he describes all communication tube receivers made in USA for nearly 50 years! Yes, Drake made a hybrid set using tubes as late as 1980.

A brief history of each company is given followed by a description of receivers manufactured. Here is an example of some of the companies listed: Allied, Breting, Cardwell, Collins, Drake, Heath, Hallicrafters, etc.

It is a fantastic book and a must for one interested in amateur and commercial receivers. I doubt there will be another author who will research and find time to print a like book. It can easily become the "*bible*" for the amateur receiver collector.

Reviewed by R. Allen

A NEW ARRIVAL AT THE FLEA MARKET

HISTORICAL ARTIFACTS

OLD TIME ADS are FREE to members interested in collecting and restoring early radio equipment for personal use.

RULES FOR ADS:

1. Only ONE per issue per member. Send SASE for acknowledgement.
2. Material must be over 25 years old and related to electronic communication.
3. Give full name, address and zip.
4. AWA will not repeat ads. Repeats require another notice.
5. The Association is not responsible for ANY transaction.
6. AWA retains the right to reduce size of ad if over SEVEN (7) lines.
7. AWA does not accept commercial advertising.
8. Deadline for ads:

FEBRUARY issue--DECEMBER 10
MAY issue ------MARCH 10
AUGUST issue----JUNE 10
NOVEMBER issue--SEPTEMBER 10

Ads received after the above dates will be discarded. Mail ALL ads to:

RICHARD RANSLEY
17 SHERIDAN ST.,AUBURN,NY 13021

(Do NOT send ads to Headquarters.)

WANTED

--Federal #24 rheostat. Don Sturzenbecker, 221 S. Montana, Mitchell, SD 57301

--Radio Retailer & Jobber, June & Aug. 1925 and an original RCA Radiola 18 lamp shield. Also manual & schematic for Philco chassis Type 19, code 126. Gary Greenfield, 214 Rocky Point Landing, Rocky Point, NY 11778 (516)821-2741

--Radiola RS 2 tuber,Westinghouse Type AR RF amplifier,Type RT tuner, Clapp-Eastham HR receiver, Crosley 3R3 Trirdyn sloping panel,Crosley 51-A and 51-P. Also brass based WD-11 and UV199 tubes. Charles Rhodes, Journey's End Road, South Salem, NY 10590 (914) 533-2503

--surplus ARC5 or Command Set for B.C. band in working condition. Ray Larson, 12241 1/2 Gorhan Ave., W. Los Angeles, CA 90049

WANTED

--tube collector looking for old and unusual tubes. Bring them to fall Conference at Canandaigua. I will be there. U. Radtke, Im Fuchtei, 143, D-4830 Gutersloh, West Germany

--early shortwave receivers such as Grebe, RCA, Hallicrafters,National.Also ARRL Handbooks and QST's of 1920's and 30's. Russ Olmsted, K4UJZ, 608 W. Thompson Lane, Murfeesboro, TN 37130 Tel. (615) 893-5344

--vintage Marantz,McIntosh,Altec,Fisher, Regency,etc. tube electronics and Jensen W.E.,Tannoy 15" or 18" spkrs. Will pay top prices ie: Marantz 7 $700, Marantz 9's $2800. Need WG36,26NG,AF3 German tubes. E. Schneck, 1401 Ocean Ave., Brooklyn, NY 11230 (718) 377-7282

--early tubes still in the box or can for my collection.Please describe box style and asking price.Also have a few extras for trade. Steve York, KB4MCE, 1100 Byrd St., Belbourne, FL 32935

--Gilfillan Bros. components with small GB trademark wanted. Also any documentation related to Gilfillan Bros kits (copies OK). Niel Wiegand, 911 North Bend, Austin, TX 78758

--Bakelite,plastic or wood table top radios with interesting deco or "fifties" design, 1930's-1950's. Also interested in pre-1962 transistor radios. Peter Thomashow, 350 West 20th St., Apt. 4F, New York, NY 10011

--two 500 uuf Cardwell receiving capacitors for old time transmitter. Also need Pilot brass plate capacitors. Fred Ritter,W4FI, 930 First Place, Longwood, FL 32750 (305) 339-5727

--Pinto Speaking Clock D-X-12A or D-X-12B, GE Model 50 clock radio. David Markegard, 8 Mink Lane, St. Paul, MN 55110, (612) 483-0872

--Aeriola Junior,VT-2,early Western Electric and DeForest tubes. Brian Roberts, 3068 N. Evergreen, Pittsburgh, PA 15237

--power transformer for 23 tube Scott Imperial or source to have it rewound. Generous cash or trade. Don Johnston, RR1, Box 218-A, Windfall, IN 46076 Tel. (317) 945- 7735 collect

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DISPOSE/TRADE

--Moorhead VT-32 (Saga p. 170) $35., RCA Slimline mike $35., UV-203A in original box $35. All plus shipping. F.W. Chapman, Apt. B 218, 1130 N. Lake Parker Ave., Lakeland, FL 33805

--Philco 90's,70's,37-665,Crosley Repwoods, Catalins,Zenith consoles,chrome and deco sets. Want pre-1960 German and other foreign sets,Pilot radios,Midwest sets.Also unusual cathedrals,Atchison, Aztec,Steinite and Fred Stein radios. Bill Moore, 1005 Fieldstone Ct., Huntsville, AL 35803 Tel. (205)880-1207

--Mercury, Westminster, Philco,Jr., G.M., Gloriette, Majestic 20 cathedrals. Air Castle, Clarion Jr., Clinton, Aetna tombstones. Emerson 520 celluloid. Numerous horizontal wood , plastic and metal sets SASE for list. Ed Ripley, 2276 Holloway Ave., Maplewood,MN 55109

--selling out over 50 radios, $5.-$1000. Send SASE for list. Pat Cutini, 2114 Main Rd., Corfu, NY 14036 (716)762-8270

--radio related tie clasps and lapel pins-Philco,GE,RCA and more.Old style microphones engravable with your call letters. Must see complete illustrated list. Send SASE (large) to Michael Sabodish, 11-A Matawan Ave., Cliffwood, NJ 07721

--Knight T060 transmitter $20., Gonset Communicator 4 Model 3341- 2 meter $40. NC-88-SW rec. $40.,Hammarlund HQ-100 $70. all untested. UPS extra. F. Krantz, 100 Osage Ave., Somerdale, NJ 08083

--Radio! Radio! Jonathan Hill has published the most complete book on British radios from Marconi to the 1960's.Almost 1000 photos illustrate the 242 page 8½" by 12" book. $19.95 paperback, $29.95 hardback, plus $2.50 P&H. Howard Stone, 2825 6th Ave., Fort Worth,TX 76110

--Travler 7" TV,excellent $250.,Philco Safari TV $90.,Scott Philharmonic radio, Transvue 160 L TV (rare), National HRO-7. Want Majestic Melody Cruiser radio, Belmont TV Model 22A21,22AX21 or AX22, need not be working, AM oscillator coil and service data for National NC 77X. Charles Harper, 2081 Harmony Court, Lexington, KY 40502 Tel. (606) 268-8549

--cloth covered AC line cord-brown or gold color. 30¢/ft. or $26/100 ft. Shipping $2.50/order. SASE for free samples, quantity discount. Bob Goodman, 7943 Ponce, Canoga, Park,CA 91304

DISPOSE/TRADE

--schematics 1920-60 for Radio/TV/PA/ham and misc. Your $3.50 investment returned if I can not supply at least your schematic. Send full description in your first letter. Alton Bowman, RD2, Chapin Vig., Canandaigua, NY 14424

--Radiola III,Crosley Trirdyn,Freed Eisemann NR6, AK20C (two),Firestone Air Chief (6 tube AC). All restored and operating. SASE for photos & prices. Leo Robinson, 879 So. Town & River Dr., Ft. Myers, FL 33907 (813) 489-1591

--DeForest honeycomb coil receiver, 8 unit panels w/2 tubes.Wavemeter GR model 174, GR Mod. 726 VTVM,headphones, HF Collins ART/13 xmtr,VHF Bendix 4 ch. recvr/xmtr.Quantity of tubes. Send SASE for list. H. Robinson, W3LW, 816 Lincoln Ave.,Palmyra,NJ 08065

--General Radio heterodyne freq. meter and crystal calibrator, ex-Navy and heavy. If interested, send SASE to Alex McKenzie, W1BPI, P.O. Box 38, Eaton Center, NH 03832

--Zenith dial glass, 8½ diameter for those big black dial sets.$6.50 includes shipping. Also tubes, Sprague orange drops,electrolytics,books,AK reprints, reproduction grill cloth, etc. SASE for list. Dan Szablewski, 1204 Andrews Ave., Lakewood, OH 44107 (216) 226-4054

--free receiver crystal filter unit probably from NC101A. You pay postage/ UPS. Art Hale, Box 1453, Oldsmar, FL 33537

--Att'n Morse Oprs-portable resonators built like the No. 7972 Bunnell "Acme" shown in the repro of original catalog. Quality built w/black pedestals and hoods in dark red,gray or natural wood. Drilled for either main line or local sounder.With 4 ft. cord and felt padded base. $40 plus $3 UPS shipping costs. Jack Proefrock, K6QEQ, 20814 S. Hawaiian Ave.,Lakewood,CA 90715

AWA MUSEUM INVENTORY

The Museum now has a new storage area for the vast collection of receiving and transmitting tubes. A survey was made of the feasibility of using the large loft or attic in the Annex. Other than the hindrance or inconvenience of the truss network, a spacious room was available by laying a floor and adding a staircase. The tubes will be removed from the old museum, cataloged and placed in new containers.

FAKE NOISE ELIMINATORS

Occasionally, in an old magazine, one will find material that is different. The following is a summary of an article from a 1934 issue of SHORTWAVE RADIO edited by AWA member Joe Hertzberg. Read and chuckle.

Extraneous noise was a problem in the 30's for AM reception as it is sometimes today. Unscrupulous manufacturers and small-time operators cashed in on the situation by exploiting a number of "*noise eliminators*". These devices were altogether different from the legitimate interference eliminators that were intended for connection directly to the terminals of the noise-creating electrical equipment.

These pseudo eliminators were connected directly in series with the antenna wire and were supposed to exercise some magical effect in quieting the receiver without affecting the actual radio signal.

The fake devices were frequently demonstrated by very convincing roadside sharpers. The usual arrangement was to have a small wooden table set up next to a car on which rested a table receiver. Nearby was a board with two small electric motors. Leading out of the back of the receiver was a flexible aerial wire, the other end attached to the car door hinge or to a small antenna on the roof.

The demonstrator would don a scientific looking laboratory coat, set up his apparatus, and draw a crowd very quickly by merely turning on the set.

The sales spiel and demonstration were pretty much standardized. He would turn on the small motors, with the aerial connected directly to the receiver. The sparking motor brushes gave a tremendous roar in the receiver. The demonstrator would then disconnect the lead-in three or four feet from the set itself and insert one of his "*eliminators*". As if by magic, the noise disappeared and the music came in loud and clear!

The magic eliminator usually took form in a small cardboard cylinder about an inch in diameter and possibly two and one-half inches long. The contents of the cylinder varied from plain, ordinary sealing wax in the out-and-out fakes, to tiny fixed capacitors in some of the more expensive units.

In one eliminator purchased by a shortwave fan in New York City, the two wires sticking out from the ends of the cylinder were actually ONE piece of wire! One eliminator, when cracked open with a cold chisel, was found to contain cement, which accounted for its unusual weight.

Now how did it work? It seems that the flexible wire that connects to the radio set itself does not terminate at a binding post at the back of the chassis, but instead goes through a small hole in the latter. The free end of the wire is hooked to the lead-in from the car aerial.

A slight tension is maintained on this wire by means of an inconspicuous rubber band tied around the latter lead-in. With the two wires together, so that the antenna connects directly with the receiver, the tension on the wire is such that a small switch is operated inside the chassis. When this switch closes, a connection is made between the little motors and the receiver, and, of course, the set becomes terribly noisy. The regular aerial connection to the receiver remains, the switch being merely tied to the wire mechanically.

Now, when the demonstrator unhooked the two sections of the lead-in and inserted the "*interference eliminator*", the tension on the lead-in was reduced and the switch inside the set opened. The noise, of course, then disappeared.

The demonstration was convincing since the demonstrator left the set running and did nothing but hook in the so-called eliminator. The existence of the set control switch inside the chassis was not evident to the onlooker. The demonstrator did not hesitate to turn the set around so the back was fully visible. The switch tension was very carefully adjusted so that the contacts would make or break if the lead-in was disturbed the slightest degree. Those were the days!

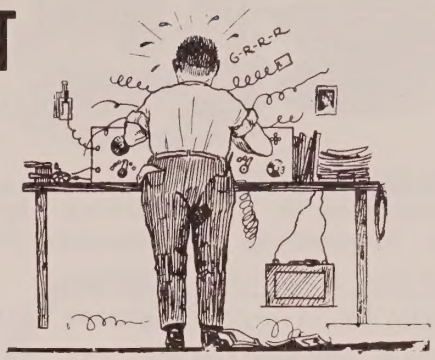
UNUSUAL RECEIVER

Dick Dryfuss (Pittsburgh) solved the mystery of the receiver built in a pair of eyeglasses (p.36, Feb. '87 OTB).

Dick has two pairs of these odd receivers plus written information. They were sold by the Ross Electronic Corp. of Chicago and use (3) transistors and (1) diode. Dan, the author, suggested the eyeglass receiver was made in the 1960's. He wasn't far off. Dick says his glasses (receiver) was made in 1962.

RESTORING OLD EQUIPMENT

How did you SOLVE a problem when restoring a receiver ? Drop us a note telling how you did it.



GROUND SPEAKER FRAMES FOR SAFETY

William L. Tipton, Jr., Jacksonville Beach, Florida

Many of the sets of the thirties and forties had their dynamic speakers mounted to the cabinets with decorative machine screws. There is generally no electrical connection between the speaker frame and the chassis of the set. Should the insulation fail on either the field coil or the primary of the output transformer, the speaker frame and the exposed screw heads will become hot with the potential of the failed component; up to 500 volts in some sets.

A short length of #18 or larger insulated wire will solve this problem. Attach one end to the speaker frame and the other to the chassis of the set. The easiest way is to put crimp-on lug terminals on each end of the wire and attach to speaker frame with a second nut on one of the mounting screws and to the chassis at any convenient point. Use an ohmmeter to check that resistance to the chassis to any point on the speaker assembly, including the screws, does not exceed one ohm.

Test the resistance from the chassis to the ground circuit of the power line outlet (third wire and/or outlet box) and make sure it is less than one ohm. NOTE: Make chassis connections only to sets with power transformers. Transformerless sets (AC/DC and 110 volts DC) often have their chassis connected directly to one side of the power line. If the set has high voltage filament tubes such as types 25L6, 35Z5, 50L6, 43, etc., it is transformerless. Make the connection to the speaker frame and ground by using the "*ground*" terminal on the set which is capacitively isolated from the power line.

Check the resistance between the ground terminal and either blade of the plug (with the power switch on); it should be greater than one megohm. If it is not, correct the problem before proceeding. Under **no** circumstances should the speaker frame be connected to the chassis or ground terminal without both being also connected to a proper ground.

An insulation failure in either type set can make the chassis and speaker "*hot*". Transformerless sets can be made safer by polarizing the line plug as is done with all recent sets. With the set turned on, measure the leakage current from the ground terminal to earth ground or power line ground with the plug inserted both ways. Tack solder a small wire on the neutral (larger) side so that the plug can be inserted only one way, the way of lowest leakage current. This measurement is easier in the case of sets with direct chassis connections to one side of the power line; simply tack solder the wire to the blade showing continuity to the chassis.

It is interesting to note that connecting the receiver chassis to the speaker frame is a fix for oscillation problems in some sets. The simple safety features described above will bring your old set up to present day safety standards and keep you from becoming a "*silent key*" before your time.

Quatre lampes et deux cœurs

RECENT RADIO and ENTERTAINER OBITUARIES

by Dick Waddell

SARAJANE WELLS (73 yrs.)
Radioactress in "The Guiding Light", "Jack Armstrong- All American Boy".

RANDALL BALLARD (85 yrs.)
Prolific TV inventor/engineer with RCA.

DELMAR HERSHBERGER (83 yrs.)
Assisted in first radar development.

L.A. "SPEED" RIGGS (79 yrs.)
Tobacco auctioneer "chant" for Lucky Strike program. Could deliver 700 to 800 words per minute!

EDDIE DURHAM (86 yrs.)
Arranger for big bands: Basie, Miller, Shaw, Lunceford,etc.

FREDDIE GREEN (75 yrs.)
Veteran musician with Count Basie.

ARCH OBOLER (79 yrs.)
Writer for radio series "Lights Out",etc.

BILL BAIRD (82 yrs.)
Star on CBS "Morning Show", "Jack ParrShow", Ed Sullivan, etc.

LOUIS DE BROGLIE (94 yrs.)
French scientist & 1929 Nobel Prize recipient. Authority on wave theory.

JOAN SHAWLEE (58 yrs.)
Actress on American & BBC television.

JAMES COCO (56 yrs.)
Actor NBC-TV series.

DAVID ADLER (51 yrs.)
Physicist/professor at M.I.T.- authority on semi-conductors.

LESLIE LEARNED (73 yrs.)
V.P. of Engineering for M.B.S. Was at WNYC,WOR, etc.

HUGH BRANNUM (77 yrs.)
Played part of Mr. Green Jones in Captain Kangoroo show.

PATRICK TROUGHTON (67 yrs.)
Portrayed "DR. WHO" on television.

SAMMY KAYE (77 yrs.)
Popular radio and TV bandleader.

DR. LEONARD FULLER (96 yrs.)
Chief engineer/designer Federal Telegraph Co. Holder of 24 patents. (Federal Arc). AWA Honorary member.

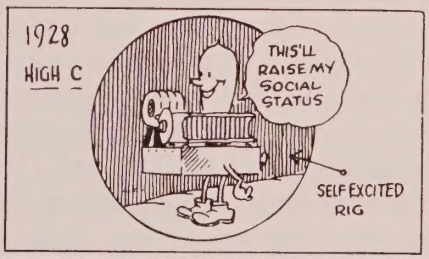
JOE EDWARDS (W4EL) (77 yrs.)
Founder of MED-AID and Prof. Eng. at Duke University.

EARLY REPLICAS AVAILABLE

It seems everyone wants to get on the old-time bandwagon-- another company just announced they were planning to make early replica radios. The solid-state receiver will be made in Taiwan and the wooden art deco cathedral cabinet in Canada. The manufacturer forecasts an initial sale of 60,000 units. A comforting feature is one can't be fooled in buying an original-- the solid-state chassis will give it away!

1929 QSO PARTY

Don't forget the date to try out your early QRP transmitter:
OCT. 14 & 15, 7 PM EDST
Approx. 3590 kc.



SILENT KEYS

Steve Kershales (W9NEB)
Wm. Schnaas
Joe Edwards (W4EL)
Noel Burroughs
Allen Stratten
William Nail

J. K. Bach

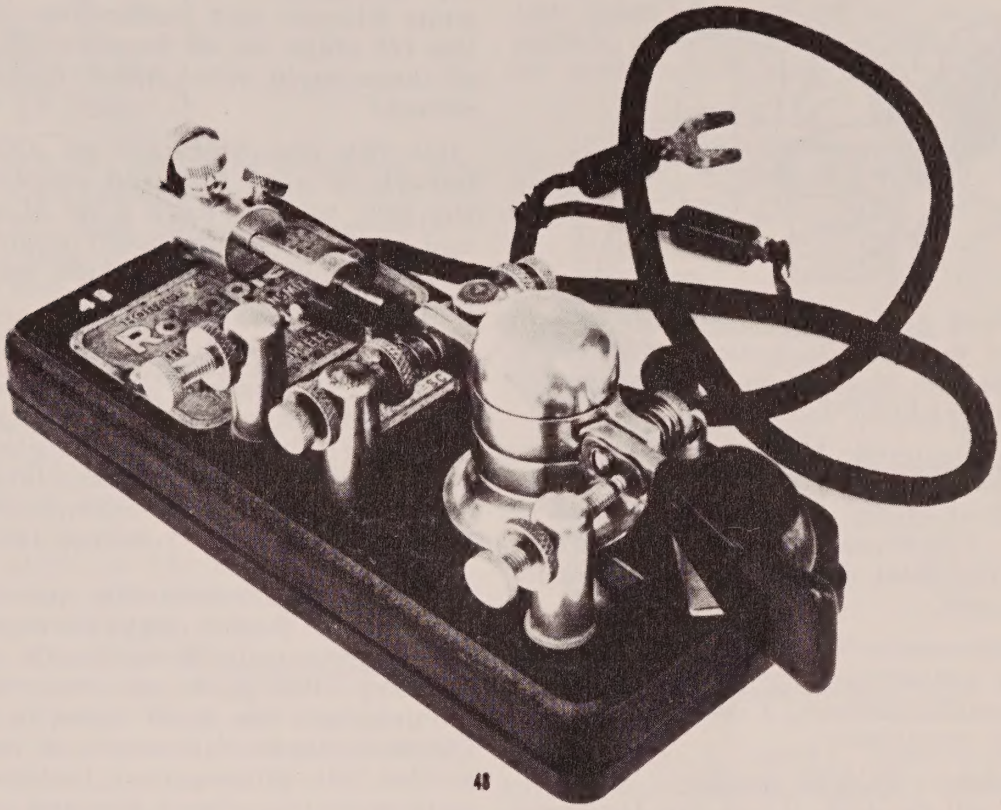
WB2PAP, ex-W4CCE, W9WGM, W2TFF
Longtime AT&T employee and frequent contributor to the AWA OTB.

CHARLES WILLETT (58 yrs.)

The Association has lost another member and contributor to the "*Old Timers Bulletin*". A letter from his widow tells of his untimely death as a result of a hunting accident in western Colorado.

KEY and TELEGRAPH

Editor: Lou Moreau, W3WRE



THE ROTOPLEX KEY

(The W7GAQ collection)

The key is somewhat conventional except for the center pivot assembly. To reduce friction and provide ease of action, the entire assembly pivots on 3 sets of ball bearings located in 3 retainer rings - indeed a unique feature. The assembly is concealed under the shiny cover.

QUE: *I have been told that there is a bug or key known by serial number only and was made by Lionel. I thought the Lionel Company made toy trains?*

ANS: I assume you are referring to the J-36, the serial number used by the U.S. Army Signal Corps to classify keys. If so, hang on to ti because there were a number of keys identifiable by that number. Lionel was sub-contracted by Vibroplex to help fill orders for their "Lightning Bug". Lionel also made conventional telegraph equipment.

The Bunnell-Martin "Flash Key" also ended up as a J-36 as well as others. The J-36 was the Signal Corps classification for speed keys before WW2 and can be found on some as early as the 1920-1930 period. The number can be found stamped in the under side of the "Speed Bug" made by the Brooklyn Metal Stamping Company as an example.

Another speed key that was adoped by WW2 military was the "Rotoplex" made by Horace G. Martin Jr. This key had a very smooth action (see illustration).

The keys of the Navy all had an entirely different number-- a long string of digits for each key, so I am not sure of the serial used by the Navy for their "speed keys". As late as 1958, the Navy gave a Vibroplex "Lightning Bug" to each Radioman who had earned his "Speed Key Certificate". Whether this Award had a serial number I do not know.

IN-HOUSE

There's a new radio museum in Canada: The Mid-Canada Antique Wireless Communication Museum in Beausejour, Manitoba. VE4ANY is the curator.

Foothill Electronic Museum (Los Altos, Calif.) has taken on new life with the appointment of Dr. Orval Ellsworth as curator. The museum has the finest display in the West and is the scene for CHRS Meets.

Don Patterson's "Radio Age" (April) featured midget sets made in 1931. An unbelieveable number. I counted 79 different receivers!

Reminder to SCARS members: your meeting will be Aug. 15 at the Lockheed Employees Radio Club, Burbank..

Remember facsimile-- a pre-war method of reproducing a newspaper over the air? A Syracuse Univ. professor is doing research on the subject and found much material at the AWA Museum including a RCA and Finch machine plus original copy dated 1939...

Congrats to ARCA on their 15th Anniversary and to John and Ruth Drake for the Anniversary Gazette.

The VHS video tape made a few years ago of the AWA Conference has been edited into a 40 minute program covering the flea market, old equipment contest, auction and ends with the four high power spark transmitters in the "Trans-Con". Very spectacular both the sound and picture quality. Copies not available at present.

Anyone have information on A. Frederick Collins..turn-of-the-century radiophone pioneer and author? What happened to him in later years?

Max deHenseler has just completed his history of the Hallicrafter Co. and their receivers. Valuable information which will be available at the Conference.

Congrats to the British Club (BVWS) for their new publication format with glossy paper and excellent photographs.

Norm Burton (N.S.W.,Australia) is making a survey of early superhets with unusual band range. As an example: several tuned up to 70 mc. but switched off the tuned rf stage on the top band (Silver-Marshall and Meissner) while Midwest and Hallicrafter retained the trf stage on all frequencies. Some of these early sets tuned up to 2000 meters!

Our IBM computer tells me AWA membership is over 3000 and shooting for the 4000 mark! That's a lot of members and work for a non-profit volunteer group. Maybe its about time we restricted membership....

If you watch Canadian TV you may hear later this year spark signals from a ship in the Atlantic sending a message to Halifax. Time: 1908. Origin of signals: one of the several spark transmitters in the AWA Museum which co-operated with TV Ontario Educational Telecommunications.

AWA recently received a cassette tape from Harry Turner,W9YZE demonstrating sending code 35 wpm with a straight handkey. Harry, an old time railroad telegrapher, has been listed in the Guinness Book of Records as top key sender. Ok fellows..how fast can you send solid copy for 5 minutes with a straight handkey??

Have you seen an ad for, quote: " A miniature FM transmitter that snaps on top of a 9v. battery and be heard one mile away." Any member have one ? Which works best-- a yagi or quad antenna? I bet the FCC would like to know.

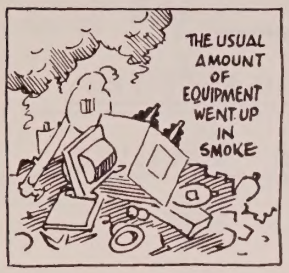
Do you work DX? Obtain a copy of a publication called "Radiosporting" and I guarantee you'll be hooked. Great copy for dx antennas, rare stations, etc.. Send $2. for a copy: "Radiosporting", Box 282, Pine Brook, N.J. 07058

Vern Wilson wants to know the real meaning behind ads that read: "A private collector wants.....". or, "Wanted for private collection....." He says he is yet to see a Want Ad stating: "A public collector wants something..." What's going on here?

Congrats to station WBT (1100 kc. Charlotte, NC) for 65 years of continuous service to the community. Not many stations can claim that many years with the same call. Ron Lawrence participated in a recent celebration with exhibit of 10 early BC receivers.

OLD TIME TRANSMITTER CONTEST

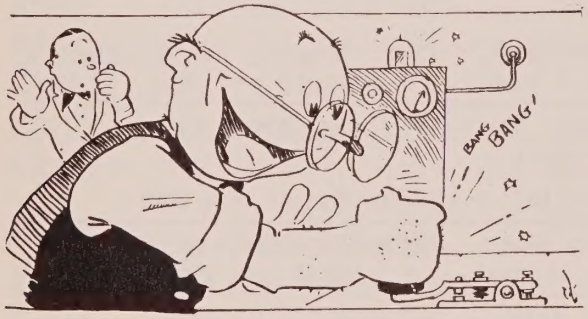
A MEMORIAL TO LINC CUNDALL, W2LC



REVIEW OF THE 1987 OT CONTEST

At 2300 JAN 14, after the crackling invitation, "GENTLEMEN--LIGHT YOUR FILAMENTS"; 3584 KC. came alive with a modest pileup of AWA members OT CW signals. Then the ops spread out and TOM grinned sheepishly as he hid his WOUFF HONG behind him. Nor did he have to use it on bad key clicks or chirps or "swinging" sigs. Things were under control and he waved us on-- - pleased that his favorite band of 160 meters was so well utilized.

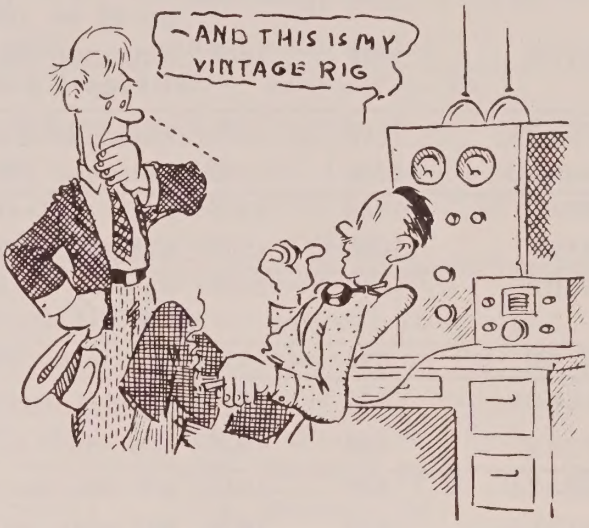
In the first period, there were a few tentative QSO's on 160 but the second period got hot with MOD-MOD sigs as well as pre-1940 sigs. There must have been a lot of coil winding the Friday between. Of course the MOD-MODs had it made for them. There were 50 stations on 160 this year as compared to 30 last year. Was this due to the extra multiplier or was it due to better sunspot conditions with attendant improvement in propagation? Anyway, the extra multiplier is no longer appropriate.



"TO POUND BRASS HALF THE NIGHT"

To recap--- we had a total participation of 126 stations. This included 10 who submitted no logs and 16 new participants. (Shshshhhhh-- two stations forgot our March 1st deadline). We had three DX stations: OZ1BZB,J37XC and J37AE. Room for more! There were 35 infamous Mod-Mod stations. We love to have you with us.. but it is easy to acquire an OT receiver or build a simple OT Xmitter. Parts are now available and the OTB has printed many articles on "How to---". Members will loan or sell manuals and give lots of free advice.

Altho we are suppose to be in the better half of the sun cycle, we were not favored by good conditions during the January contest period. Signals 500 to 1000 miles were strong but long haul signals were weak. Many Easterners will be surprised to know that three W6's



(A.R.R.L. permission given to copy W1CJD's cartoons for amateur use.)

were operating: W6FKF, W6RTU and W6 TDF. Also W7AHK, W7BCT, W7IC, W7JY, W7LOG and W7SEH warmed the ether and W2EJ/7 and K2WW/7, both in Arizona, were enjoying the warmer part of the 7th district working their hometown of Rochester, N.Y. Next year, K2WW plans to permanently locate in Phoenix. W6's and 7's wish the Easterners would stay on later!

We hope that Lou, VE3BDV, will always be able to obtain special authority to use his simulated spark signal. It was beautiful ! TOM almost cried.. W1BVL used his spark coil ICW but of course he had to rectify it. (Could just hear a touch of tone leaking thru or was it just my imagination?

Let's all embark on a special project to light up 1988 to let the world know that TUBES still shine in the shack!

73 de W2BGN

RESULTS OF
AWA OLDE TYME CONTEST

PARTICIPANTS USING BOTH EARLY TRANSMITTER AND RECEIVER

CALL	SCORE	YEAR TRANSMITTER	YEAR RECEIVER
W2VDI	1478	1930: Xtal-pp 865- pp 211 pp 45 on 160m.	1937: NC-101X
K4TS	1376	1939: Meissner signal shifter with pp TZ-40's	1937: Super-Pro 1938: Meissner on 160m.
W8VSK	1308	1939: 6KL-25L6-813	1938: NC-101X + mod. 160
W8BFD	1206	1939: Meissner SS- 838	1937: National HRO
W8AU	1148	1936: RCA ACT-40	1935: Sargent 11-UA
K2LP	1056	1939: 6L6 eco- 807- 860	1938: Hammarlund HQ-120
W3DB	1015	1928: Hartley 40/80/160m. with 211-C. Mod. 20 m.	1938: German military Mod. E-526 super.
W4NM	992	1939: 6SJ7 eco- 6V6-T21-809	1939: Hallicrafter SX-24
W2HBE	946	1937: 42 xtal oscillator	1933: 57 regen. det.,56 aud.
W2AN	896	1937: 6L6 xtal- 6L6- 807	1939: Hammarlund HQ-120X
N3AYU	858	1932: UV-203 Hartley	1934: National SW-3
W1BVL	839	1939: 807 xtal- with spark coil HV supply + mod.	1930: 230 regen. det. + 233 aud. and mod.
W3HWT	814	1924: UV-202 Hartley on 160m. 1926: UV-210 Hartley on 80m. (Chemical rectifier)	1924: 1BGF det./aud. 160m. 1926: Grebe CR-18 on 80m.
W1YG/4	803	1939: 6J5 xtal- 6L6 + mod.	1934: National SW-3
W2LYH	774	1939: 6V6- 6L6 + mod.	1939: 2-tube regen.+ mod.
W3INV	728	1936: 6L6G xtal osc. 6L6-RK11 on 160m.	1934: Regen. det.+ aud.
W2HIN	724	1929: 210pp Hartley 80-160m. 1937: 6L6 xtal on 40m.+ mod.	1929: Regen. 24+ 27 aud. Mod. on 20m.
W2FB	712	1932: 45 Hartley on 80m. Mod. on other bands	1939: HQ-120X + mod.
W4COC	612	1939: Meissner sig. shifter	1939: Super Pro 200
K2MP	686	1939: Meissner S.S. on 80m. 1937: 807 xtal on 40m. + mod.	1938: Hammarlund HQ-120X Mod. on 20m.
W3VVS	594	1939: Meissner Signal shifter	1936: National HRO
W2IXH	568	1939: 6SJ7 eco- 6V6- 807	1939: Hammarlund Super Pro
W3EAN	546	1930: 801A's pp. tptg	1930: National SW-3
K8VBL	543	1933: 42 xtal- 42's 40& 80m. 1939: 6F6-eco + (2) 807's on 160m. + mod. on 20m.	1938: NC-101X + 1929: UX-222+ 201A(Ross Hull) Mod. on 20m.
W4VBX	540	1939: 6K7 eco+ 6L6 amp.	1934: National SW-3
W2BGN	520	1930: 205D xtal- 205D-211A Mod. on 20m.	1938: National HRO Mod. on 20m.
N4EE	515	1938: 6L6-6L6G-(dblr/amp.) Mod. on 20m.	1938: Composite superhet from 1938 QST + mod. on 20.
K2OA	496	1938: 6L6 xtal osc.	1938: National HRO

W2FW	454	1931: 801 xtal- 801 amp.	1933: National FB-7
N9TT	424	1937: BC-223 on 80m.+ mod.	1937: BC-312 all bands
W2IEG	420	1932: 47 xtal osc.	1933: National FBXA
VE3AFW	388	1938: RK23 eco- (2) 814 amp.	1939: ACR-111
W1SZJ	309	1938: 6L6 xtal on 80m. + mod.	1932: SW-3 + mod.
W4OTN	299	1932: 210 Hartley on 40/80/160 1934: 47 xtal- 2A3 amp.	1934: Regen. det + aud. 1938: HQ-120
WØJF	276	1927: 210 xtal- 203A + mod.	1936: National HRO + mod.
K2RY	272	1936: 47 xtal- 46- 210	1936: National HRO
W3OER	265	1929: UX-210 in TNT	1929: Pilot Wasp-3 tubes
W7SEH	228	1939: 6V6 xtal- 807 amp.	1936: HRO Junior
WA9VLK	204	1934: Pair 6L6's(Frank Jones)	1938: Hallicrafter SX-17
N5JBB	151	1938: 6L6 xtal-plus mod.	1938: Regen. det. + aud.
AA4RM	150	1938: BC-187- 210-865 Mod.	1938: BC-186 (34+34 regen. 1939: Hallicrafter S-20
VE1OC	143	1931: '47 xtal osc.	1936: RME-69
KD2OM	116	1929: 210 Hartley	1939: National HRO
W7JY	54	1939: '59- pair '46 pp.	1934: National SW-3 + mod.
K6RTU	54	1939: 807 xtal + mod.	1939: Hammarlund HQ-120
K6SO/4	42	1939: Meissner S.S.	1939: Halli. Sky Buddy
WD5HLZ	40	1939: 6L6 xtal - 807 amp.	1939: Hallicrafter SX-25
W7AHK	38	1936: Taylor TZ-40	1930: National SW-3
W8JYY	30	1934: 210's pp. in Colpitts	1934: National SW-3
W6TDP	20	1930: Pair '45s TNT	1934: National SW-3
W1MB	10	1931: 210 TNT	1936: National SW-3
WD8OFB	4	1929: Hartley (5 wtts.)	1933: National FB-7

EARLY TRANSMITTER or RECEIVER

CALL	SCORE	TX or RX
J37XC	1752	RX:1935: 6K7-6J7-6J5
N4FS	918	RX:1939 HQ-120 X
W2ER	878	RX: 1938 RCA superhet
W2LV	782	RX: 1937 National HRO
K2BBK	466	TX: 1939 6J5-6L6-
W2PHT	318	RX: 1939 HQ-120X
VE3BDV	310	RX: NC-101X with simulated spark TX.
W1YJ	252	RX: 1934 Nat. FB7X
W1MCG	230	RX: 1932 Comet Pro
W2EFI	222	TX: 1932 245 Hartley
VE3HD	204	RX: 1939 HRO-MX
KV1UV	169	TX: 1931 171A Hartley
KA8DKT	100	RX:1937 6D6-77-38 Reg.

CALL	SCORE	TX or RX
W1XV	86	RX: 1939 AR-77+ mod.
K9AYW	80	RX: 1937 NC-101X
W1LDF	72	TX: 6AQ7 xtal- 6L6
NMØL	72	TX:Halli. HT-6(6L6-807)
W3III	55	TX:1934 UX-210 TNT
W9DZG	50	RX: HRO-5 (1936
W1GSO	50	RX: 1936 BC-312
KCØCW	50	RX: 1936 National NC-100
W9GFS	40	TX: 1933 47 xtal-46-210
WA2TLR	36	RX: 1939 Hammarlund 120
W7LOG	28	RX: 1938 Hammarlund 120
W1WXZ	22	RX: 1938 Hammarlund 120
W7BCT	20	RX: 1936 HRO-5
W9GJS	16	TX: 1930 210-210 MOPA

ALL MODERN EQUIPMENT

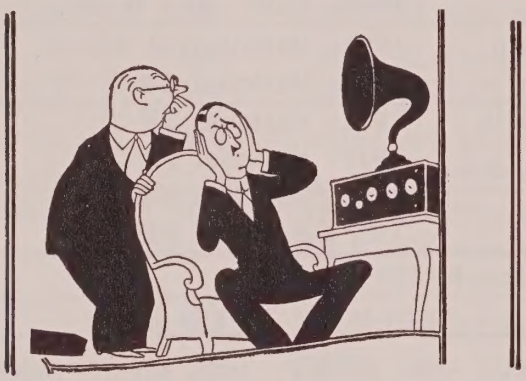
CALL	SCORE	CALL	SCORE	CALL	SCORE	CALL	SCORE	CALL	SCORE	CALL	SCORE
K2IC	899	W4UM	465	KB2OR	179	WØFXY	124	K4IM	56	W9NN/4	24
W2POC	834	W2EG	208	W2LL	179	W4AWS	117	W2ZUX	49	KB3SI	18
W2UK	498	W8AQ	197	W8SS	155	W1DX	116	OZ1BZB	42	W2QLI	13
K4JO	352	AF3V	192	K8IKO	143	KA3GXP	114	K2WW/7	38	W2RFY	11
W1AB	285	W4AIW	187	N2FCZ	129	W2EJ/7	102	W3RG	39	KC3YE	2
W2AAU	275	W2GB	183	K3AK	124	W4VVC/4	76	W9SG	32		

BROADCASTING DXing – THEN AND NOW

by Ludwell Sibley

A major appeal of radio has always been the ability to pull in stations from far away, even on primitive equipment, as if by magic. A lot of us present-day equipment restorers like to DX-test our new acquisitions, both for technical purposes and to establish a sort of spiritual communion with some long-departed former owner. I personally like to verify that an old set can receive KDKA in Pittsburgh from New Jersey. Such performance sets no world's record. But, given the pioneer history of that particular station, it just seems fitting and natural.

Collector bulletins often run articles dealing with tryouts of old receivers. In them, a recurring theme is because the restored Blooperdyne gets a lot of DX stations today it must have been a hot set back when it was new.



"Dx with kit neutrodyne.."

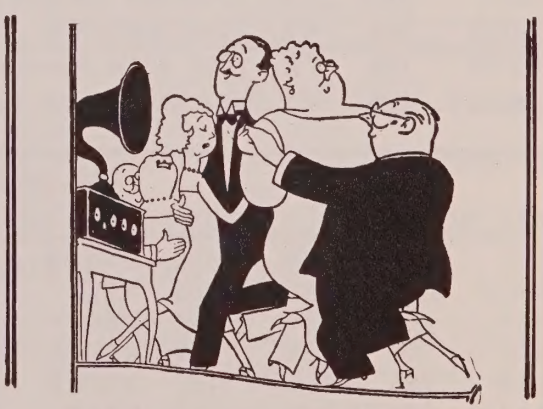
But today's DXing is a whole lot easier than in earlier times. My father, located near Detroit in the mid-twenties, picked up KDKA on a crystal set and heard KFI from Los Angeles on a kit-built neutrodyne. Those were much bigger achievements than most of today's broadcast DX. The major difference is in the performance of the stations themselves.

First is the matter of transmitter power. While the early broadcasters quickly learned the value of high power, it took a while for truly powerful stations to emerge. In 1926, there was only one 40-kW station in North America (WJZ); two 20-kilowatters (KOA and KGO), four 10-kW installations (WBAP, KDKA, WLIB, WWAE), and 26 more at five kW. The rest ran lower power: of the 657 total stations, about half (330) used 100 watts or less.

By contrast, 50-kW transmitters are routine stuff today. Further, if one is favorably located with respect to a 50-kW directional station, the effective radiated power is more like 100 kW. The median transmitter power for nighttime operation is now much higher. Apart from the six "*local*" channels on which most night operation is at 250 watts, and neglecting post-sunset authorizations held by former daytime-only stations, the median power today is nearly 1000 watts. This is about 10 decibels higher than the 100 watts that pertained in 1926.

Second, the stations' antennas are better. In 1926 a typical big-time installation involved a pair of towers on top of a downtown hotel. The towers held a flat-top antenna in which the vertical wire did most of the radiating while the horizontal wire provided top-loading. This antenna worked against a counterpoise placed on the roof. Unfortunately, a lot of the transmitter output went into warming the loading coil, the roof, and the walls of buildings nearby. Today's typical station uses an isolated transmitter site, an antenna high enough to be efficient, and a ground system of 120 buried radials. Tall towers are required: for example, for a Class I station on, say, 1020 kHz, the FCC's rules specify a minimum tower of 470 feet. Compared to a Twenties station, the resulting improvement in radiation is roughly five decibels: about 2.5 dB for the better radiator, another 2.5 dB or so for the improved ground. The actual improvement is probably higher because of the absence of large loading coils, the avoidance of shielding by buildings, and the careful matching of impedances.

Third, average modulation levels are higher. The usual transmitter in the Twenties used a Class A Heising modulation system capable



"Modulation levels are higher.."

of no more than 50% modulation on peaks. Today's FCC rules allow up to 125% modulation on positive peaks, and the typical transmitter is capable of such levels. At the same time, audio levels are controlled tightly now. No longer is the degree of modulation set solely by a studio operator "*riding gain*" hour after hour with variable attentiveness. Today we have elaborated multiband compressor-limiter processors to squeeze every half-decibel of loudness into the air signal. The resulting total improvement in DX "*reach*" is hard to estimate: 10 decibels... 15... maybe more.

There has also been an improvement in DX intelligibility from the reduction of audio distortion in the chain from microphone to antenna. When a new line of Western Electric transmitters was introduced in 1929, a proud claim was made that distortion had been reduced to five percent, a figure that would actually meet today's FCC standards. But earlier studios and transmitters were much worse. Carbon microphones weren't much for quality. Before crystal control, transmitters suffered up to two kHz of incidental frequency modulation, a sure source of distortion. Oscilloscopes, modulation monitors, and other aids to maintaining audio performance were laboratory curiosities. We can only guess at how much DX intelligibility was lost to "*mushy*" modulation.

"Frequency tolerance is tightened.."

Today's DXer is spared the chorus of heterodyne howls that used to plague reception. Some of these came from the neighbor down the block with an oscillating regenerative receiver. More serious were the built-in heterodynes from stations assigned the same nominal frequency. As of the late Twenties, the frequency tolerance for transmitters had been tightened to plus or minus 500 Hz. But this loose tolerance still let stations unwittingly destroy each other's reception. One can only imagine the effect of trying to catch some rare DX station in the presence of three or four heterodyne tones, each fading in and out, each wobbling up and down in frequency with modulation. The universal use of crystal control finally removed this misery, but today's 20-Hz frequency tolerance wasn't in full effect until 1944. On the East Coast, we can routinely detect heterodynes from European stations with their 9-kHz channel spacing, but this is only a weak hint at what the old-time DXer faced.

We also have many more stations per channel today, both from sixty years' growth of broadcasting and from the FCC's policy of permitting new nighttime stations on the former "*clear*" channels. We have adjacent-channel sideband interference from the widespread use of high-frequency audio boost, a recent development. But these are minor problems compared to the many factors that have made DXing easier. So we might well remember, in examining someone's long-forgotten DX log or trying out his hand-built receiver, that distant reception was a lot harder in the old days. To get a real idea of old-time conditions, one could wire a 25-dB pad between the antenna and the receiver under test to give 1926 signal levels, and then tune up three or four signal generators on the DX frequency to simulate a good set of heterodyne tones!

PRESERVING BCL-SWL QSL CARDS

A committee has been formed to preserve early radio verification cards. BCL's and SWL's have over a period of 60 years collected an enormous source of valuable information on broadcast stations in pursuing their hobby. All too often, when the dedicated listener loses interest or dies, his collection of QSLs is discarded.

A committee of five members of the North American Radio Clubs (publisher of *FRENDX* journal) has been fortunate to obtain a permanent depository for the cards: *The Christian Science Monitor* headquarters building in Boston, Massachusetts. More information on this worthy project may be obtained by writing to their attorney and chairperson Jerry Berg, 38 Eastern Avenue, Lexington, Massachusetts 02173.

COLLECTING ANTIQUE ELECTRICAL AND ELECTRONIC ARTIFACTS IN BRAZIL

by Carlos Alberto Fazano, Sao Paulo, Brazil

Collecting antique electrical and electronic artifacts is a fascinating activity, because thus we get acquainted with the various historical, scientific and technological aspects which were responsible for the development of the electronic field up to our days.

In spite of the syndrome of possession, which unfortunately is inherent to any kind of collector, it became evident that the historical interest in the electronic development is much stronger.

This can be testified by the recent increase of private and public museums, organizations and newcomers devoted to the study and the preservation of electrical and electronic artifacts in their several modes such as: tubes, lamps, radio and TV sets, transmitters, telegraphy keys, radio programs, antique electronic literatures and so on. Indeed, if this interest is growing abroad, in Brazil the situa-

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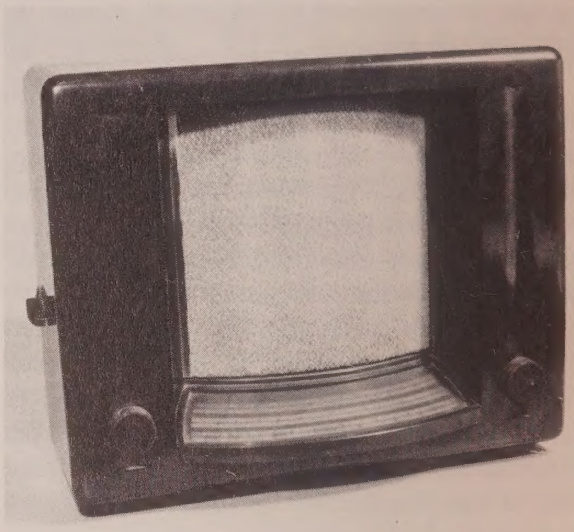
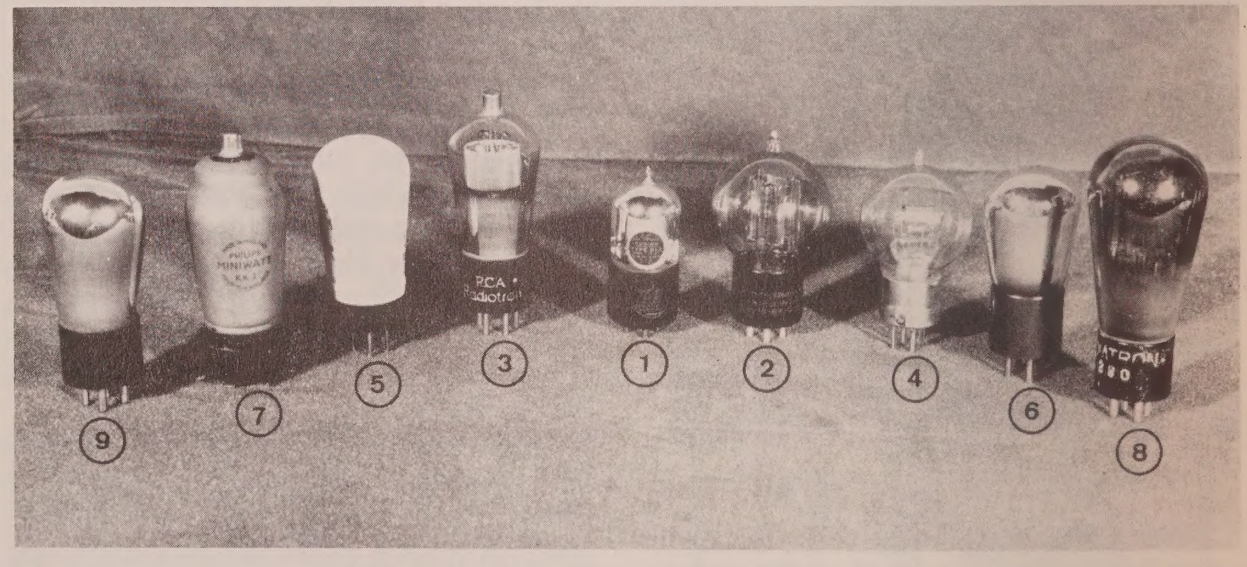


PHILIPS RECEIVER CIRCA 1936-37
This is a peculiar set since it does not have a metal chassis- all the components are fixed by glue inside the plastic cabinet housing!



American and European tubes that I have collected.

No.	Type	Manufacturer	Origin	No.	Type	Manufacturer	Origin
1.	DV-3	DeForest	USA	6.	C-509	Phillips	Holland
2.	101-D	Western Elect.	USA	7.	KK-2	Phillips	Holland
3.	24-A	RCA	USA	8.	UX-280	RCA	U.S.A.
4.	"E"	Phillips	Holland	9.	UX-201A	RCA	U.S.A.
5.	AC2-HL	Mazda Valve	England				

CONFERENCE
AWA AUCTION

REGISTRATION FORMS: Available in lobby from Wednesday until Friday AM.

BIDDING NUMBER CARDS: Available Thursday evening 8:30 - 10:30 PM and Friday 8:00 - 10:00 AM (Canandaigua Room). Cards issued to ONLY AWA members.

ITEMS FOR AUCTION: Will be accepted THURSDAY evening 8:30 - 10:30 PM and Friday 8:00 - 9:00 AM as time allows. ALL participants MUST be AWA members.

AUCTION MATERIAL

1. RECEIVERS: Maximum of three (3).
2. ACCESSORIES: (speakers, parts, books, etc.) Maximum of 3 items or groups.
3. VACUUM TUBES: Maximum of 5 or 5 groups. Indicate whether filaments are good. (Early tubes preferred.)

Restrictions: No consoles (receivers)or large groups of service manuals/magazines.

NOTE! AWA NOT responsible for material sold or sales action/tax. Also. AWA not responsible for material damaged or lost.

10% of auction sales donated to the AWA Museum Maintenance Fund.

LADIES' TRIP

FRIDAY, SEPTEMBER 25

Bus leaves Sheraton Inn: 9:15 AM
Meet in lobby at 9 AM

Once again our tour will be escorted by the congenial guides of Sparetime Travel, and this years destination will be Rochester.

Our morning will be spent in the Memorial Art Gallery, where docents will escort us through 5,000 years of art history and a special sculpture display.

Luncheon will be a return visit to the fascinating CHANGING SCENE, Rochester's revolving restaurant.

The afternoon attraction will be the magnificent collection of the Margaret Woodbury Strong Museum, which exhibits toys, dolls, home furnishings,clothing, and technology of eight generations. We'll return to Canandaigua about 4:30 PM.

The all-inclusive price is $36.00.

SATURDAY, SEPTEMBER 26

12:30 Noon, Tiffany Room, Sheraton

This is the time we'll have a chance to get better acquainted, have lunch and hope we'll be a lucky one to get a surprise package ..... and enjoy a short program.

REGISTRATION 1987

				Fill in number attending and the amount in appropriate box	
				NO. ATTEND	TOTAL DOLLARS
REGISTRATION – Required for all activities *Spouse and children under 19 free.*			Advance $5.00		
			At door $7.00		
Friday Sept. 25	**LADIES' TRIP** – Take Bus at Main Door	9:00 AM	$36.00		
	DINNER – Chicken Cordon Bleu Canandaigua Room	7:00 PM	$10.50		
Saturday Sept. 26	**LADIES' LUNCH** – Tiffany Room	12:30 PM	$8.00		
	ANNUAL BANQUET – Prime Rib Canandaigua Room	7:00 PM	$16.25		
FLEA MARKET REGISTRATION – Required of all sellers $10 per 10' space, limit of 2 spaces per person **INDICATE NUMBER OF SPACES YOU NEED.**					

Gratuity and tax included in all meals.

TOTAL AMOUNT →

REGISTRATION FORM

Antique Wireless Association

ANNUAL HISTORICAL RADIO CONFERENCE

Name _____ Spouse/Guest _____

Street _____

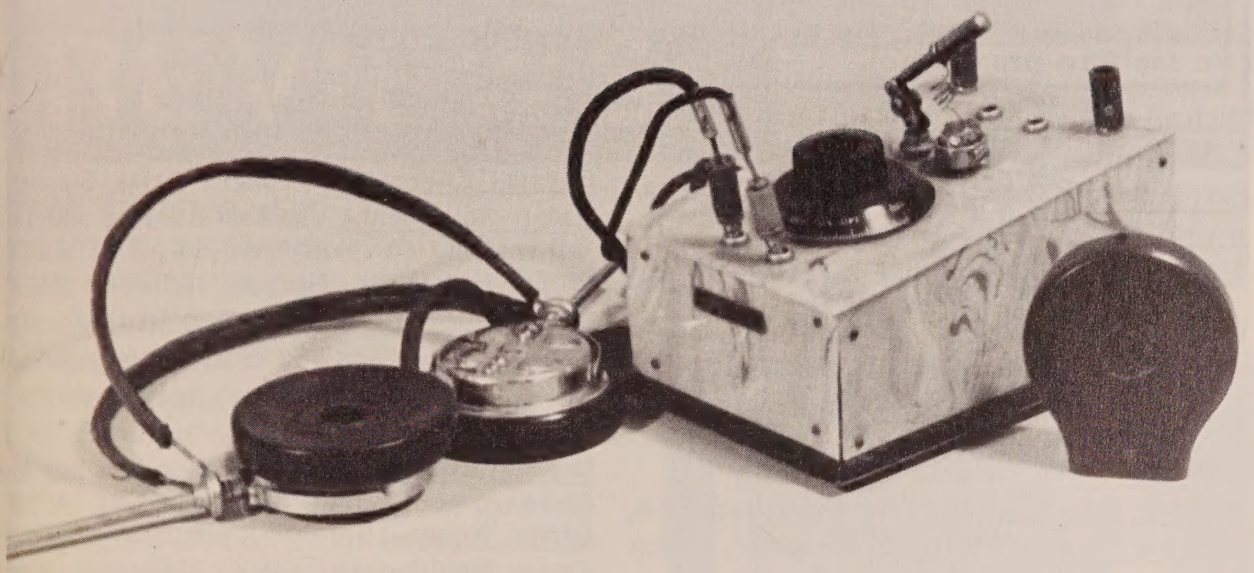
City _____ State _____ Zip _____

Country (if other than US) _____

Make check payable to **ANTIQUE WIRELESS ASSN.** and mail before September 15 to:

ANTIQUE WIRELESS ASSOCIATION, INC.
c/o Dick Ransley
17 Sheridan Street
Auburn, NY 13021

IMPORTANT: SEPTEMBER 15 is absolute deadline for all meals. Registration covers all activities except flea market, meals, and ladies' trip. Pick up tickets at Sheraton Inn Headquarters. If you wish acknowledgement of reservations, enclose S.A.S.E.



There were very few radio manufacturers in Brazil in the early days. Hence, there was a need to import receivers from USA and Europe. This is a NORA crystal set of the early 1920's made in Germany. Its wooden housing is covered by an old type of plastic known as "galalith". Note the plug in coil at right.

tion is not very different, but rather peculiar. Considering that the Brazilian electronic industry started its production around the mid-thirties, initially a lot of equipment was imported either from Europe as well as from the U.S.A.

This fruitful site of imported and locally manufactured antique electrical and electronic artifacts could be a paradise for the collector and historican due to the many available types which however are not easy to get because the greatest part of this heap just disappeared during the years or was destroyed in the junk yards throughout the country.

The following sequences of photographies may give collectors and historians a good idea of the many different origins and amazing types of antique electrical and electronic artifacts gathered in Brazil by the author over the years.

(Cont. from page 19.)

versions had four grids, but in some cases the plate had partitions as shown in figure 5. Surviving samples have bulbs with and without tips.

Values for patent samples are very difficult to determine. The serious collector would probably not hestiate to pay $190.00 to $225.00 if he wanted to have a complete group of early Westinghouse production.

The next installment in this series will feature a special transmitting triode also developed by Frank Conrad.

SAVE THE TRANSFORMER

I, like others, have discarded old AC receivers with cabinets beyond repair. Recently I have found the need for several early replacement power transformers and was shocked to be quoted $25 to $75 for a transformer with plate and several filament windings.

When I now have a "*junker*" with a good power transformer, I spend 15 minutes carefully removing the transformer and marking the leads before I toss the chassis to the trash can.

-- *Jeff Stedwell*

NEW MEMBERS

who are (or were) with the electronic communication or related industry.

Information in this column is obtained from the member's Application Form. If you are not listed, you did not fill in the form properly.

Michael Lindemayer, Analog Devices Inc.
Luther Quick (WA2DTA) Bell Research
Larry Green (WA4IHI) Chief Eng. G.N.B.
Irving Fidlet, Stats. WHUM,WRFY
Stanley Adams (WD4AJR) Stats. WCNW, WBBJ, KETA, WFNC, M.C.I.
Erwin Magho (Vienna, Austria) Teacher Technical school
Tore More (LA5CL)(Norway) Metereological Institute
John Beran (WA6OUV) Stat. KSDS
Sheldon Wheaton (KCØCW) King Radio Co.
Duncan Kreamer (W1GAY) Commer. KMGS
Wm. Hobin (W6RYR) KPH,WGHS, KQED
Basil Barbee (W5FPJ,W2MWX) Barbee Radio Lab.
Carlos Fazano (Brazil) Electronic tech.
Robert Hall (W8ORD,W8FC) E.E. Com.
Robert Decker, E.E. Radio Prod. Design
Henry Ferrai E.C.T. Div. RCA
Richard Desjarlais Radio Supply Co.
Charles Dellinger (W4TLC) Stat. WBLV and WFBC
John Lieb E.E. at Allis-Chalmers Mfg.
Walter Johns Pres. of Transvision Corp.
Charles Myers RCA broadcast and Radar Division
Donald McKague Television BC and satellite communication
Fred Streib (W6NA) Radio officer with Pan American Airways
Ronald Hanes (NØCDM) Stat. KECO
Keith Keller (WH6AAJ) Eagle Electronics
Fred Niemann (WA1DBM) MIT Radioan Lab
Udo Radtke (DJ5KG) German radio eng.
Ralph Jannini KA1FAA) James Millen Co.
Carol Kernats (N9FVV) Elect. teacher
Stephen Capagna (N1BXC) AT&T com.
Francis Marcellino (W3BYM) Applied Physics Lab
Edward Stolfus (WB3BQW) Eng. antenna and elec. control
Harold Hasbrouck (K6OVN) Aerospace Elec./Radio
Mike Adams,Stat.WCOL, Prof. Radio-TV
Richard Sequerra Manufacturer of radio station equipment
Nick Pendergras (KB1WB) Prof. of Elec. and Computer Engineering
Bill Groves (W3ZBM,K9KPW,W5RLC) Stats. WKDN, WPEN, NBC, RCA, In-Stat.Inc.
Van Field (W2OQI) C.A.I.,Hartman Systems, Fairchild, etc.
Robert Andrews(K3QXH) Station WHP
Art Reiss (WA2YBG) Electronics Instructor
Ralph Cordell (W5BRT) Amoco Research Center
Everett Chapman (W1OCY) Atlas Sound Co
Ralph Holzknecht (W6RVY) Radio with Pan American Airway
Elliott Valentine (K4JO) AT&T
Miltor Wennerberg (KØHOQ) King Radio Co
Carl Warren (WØKWS) BC & TV engineerin
Bill DeWitt (W2DD) Stats. WHAM,WHEN, WABO and WOKT
Herman Zeps (WD9JKQ) Stats. WCRQ,NAA, I.T.T., Farnsworth Radio Co.
Dhaen Roger (Belgium) Electronic teacher
Chris Bisaillon (VE3CBK) Canadian Marconi
F.Cecil Grace Allen Dumont Labs
Edward Belkin Station KYW
Robert Ross Engineer NASA
Charles Whiting (K2BWL) AT&T
Ronald Smith Mountain Bell Tele. Corp.
Danielle Bates Thomas Corp.
Lynn Wilke (WA2DAC) Commun. officer
Fletcher James (W4IVB) Marine Radio WCY PAA Radio Officer, WIOD, etc.
Charles Rhodes Chief Advance Systems, Philips Labs, etc.
Robert Miller (W8DKG) Indust. elect.
Michael Durand (KA2KUG) Manager of microwave network
Robert Johnson (W2WVC) Pres. of Ayays Consultants
John Henderson (West Australia) Tele. Tech.
Granville Klink (W3AFN) Stat. WTOP
Lance Koll Medical electronics engineer
H.D. Utz Electronics at McClellan AFB
Bob Grein (K1RG) M.I.T. Mitre Lab.
Mark Mitchell Hewlett-Packard Co.
Glenn Boundy (K4OX) Storr BC Co.
Austin Gutman (W3FOG) Cable TV Ind.
Ralph Codrell (W5BRT) Research Center
James Morford (WA8NSK) Elect. Utility
Gary Reiss (WAØJRM) Stats. KRAD, KAGI, KUVR, KGFW, KICS,KROA
Erwin Macho (Austria) Radio des.
Robert Clement, Chief Eng.Univ. facul.

BOOK & MAGAZINE REVIEWS

by Ernest Hathaway

THE GENERAL:
DAVID SARNOFF AND THE RISE OF THE COMMUNICATION INDUSTRY

by Robert Bilby, Pub. Harper & Row
326 pages $20.95

"*The General*" is a companion book to "*RCA*" both of which are most timely because of the recent corporate merger of G.E. and RCA. The man, David Sarnoff, and the Radio Corporation of America are inseparable both in personal and business life. Sarnoff died in 1971 at the age of 80 years.

The author's style makes the book easy reading. He makes no bones about Sarnoff's overweening egotism such as his desire to be called General, a commission he received during WW2. Nor does he hesitate to reveal the true story about the Titanic incident which somehow got out of hand.

In turn however, he tells about a remarkable man and leader who was destined to make RCA one of the world's largest radio corporations. It is great reading and highly recommended. Surprisingly, I got my copy from the public library. There are no illustrations.

RCA

by Robert Sobel
Pub. Stein & Day $19.95

Is the intriguing history of RCA Corporation and its founder, David Sarnoff and the parade of executives that followed him. The author goes into more technical detail and legal detail than Bilby (author of "*The General*") and makes good reading for the radio technician and historian. It is a catalog of amazing stories and especially a tale of mixed opportunities and flawed judgement – an example being RCA's indifference to Japanese competition. Robert Sobel also authored the book "*IBM*" and "*ITT*". Recommended for the radio historian.

50 YEARS OF RADIO

In March, 1938, Hugo Gernsback published his huge 144 page *Radio-Craft* magazine that was jammed with stories and articles about everything that had taken place the previous 50 years --- and predictions of what would take place in the next fifty years.

Numerous fullpage ads from the 1920's are reproduced making it doubly interesting to study for hours on end. The excellent reproduction is almost as good as the original with a surprisingly good color cover. Available for $14.95 plus $2. postage. VESTAL PRESS, Ltd. Box 97, Vestal, N.Y. 13850

On Review

ANNOUNCEMENT

THE AWA REVIEW
VOLUME II 1987

Volume II of the *AWA REVIEW* is in preparation and should be available for distribution at the AWA Fall Conference, according to the editors, W2LV and K3ZJW. Among the papers to be included are:

The Atwater Kent Story ... Part II, by Ralph Williams

The "Gap", by Art Goodnow

A Century of American Telegraph Keys, by Lou Moreau

DeForest Radio Telephone Companies, 1907 - 1920, by Thorn Mayes

The 128 page well-illustrated book will be similar in format to Volume I. They may be purchased at the conference or by mail. Prices will be announced.

Copies of the First Edition, Volume I will also be available from Dex Deeley at the Fall Conference. Further information in the next bulletin.

MORE ON AUCTIONS

We've read how an auction can be rigged by several buyers ... now here's something else to watch for: bidding on one's own piece of goods. If the seller is unhappy how his set (or whatever) is moving, he may "*up the bid*" in order to bring in a better price– or have a friend do so.

This is against the law in many states including New York where it is known as the NEW YORK STATE MOCK AUCTION LAW. Such was the case in Rochester, New York on February 5, 1980 when the Assistant District Attorney enforced the law at a rug auction. People and auctioneers were false bidding up their own merchandise and were arrested.

If you feel you may not receive a decent response on your receiver, etc ... place and have announced a minimum bid BEFORE the auction. One has to be careful however – if your minimum is too high, it may never take off and it is set aside as "*no sale*". Note the many items in this group at recent AWA auctions. Don't be too hungry. If you really want to sell something ... have a low bid price.

ACHIEVEMENT IN RADIO

70 Years of Radio Science, Technology, Standards, and Measurement at the National Bureau of Standards

(Available from the Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 20402)

This massive book of 842 pages (8¾" x 11¼") is the largest, heaviest and technical book in our library. It must weigh at least 10 or 12 pounds! It is also one of the most thorough books I've read covering a government technical agency.

The book starts at the turn of the century when our government felt a need to establish benchmarks or standards in the scientific field. From this point up to the present time the material covers numerous areas of technical development at the Bureau with emphasis on radio.

The book is heavily illustrated on fine glossy paper. A treasure for any library and a valuable reference to the historian. I've always been impressed with the fine work the Bureau has done (and is still doing) without scandal or accusations of shoddy work. A group of dedicated scientists we can be proud of.

OTHER RECOMMENDED BOOKS:

RADIO HORN SPEAKER ENCYCLOPEDIA
by Floyd Paul ($13.50)
1545 Raymond Avenue
Glendale, California

GOLDEN AGE OF RADIO IN THE HOME
by John Stokes ($24.95)
Vestal Press, Jensen Road,
Vestal, New York 13850

RADIO! RADIO!
by Jonathan Hill ($22.45)
Howard Stone, 2825 6th Avenue,
Ft. Worth, Texas 76110

DID YOU KNOW– what was believed to be the first amateur color TV transmission in the United States, and possibly the world, was put on 420 mHz by WØKYQ in Dakota City, Nebraska in 1960.